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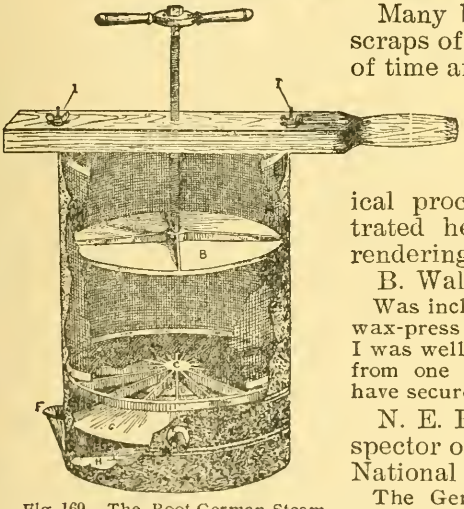

Fig. 169.—The Root-German Steam Wax-press. Price $14.00. Shipping weight, 70 lbs.

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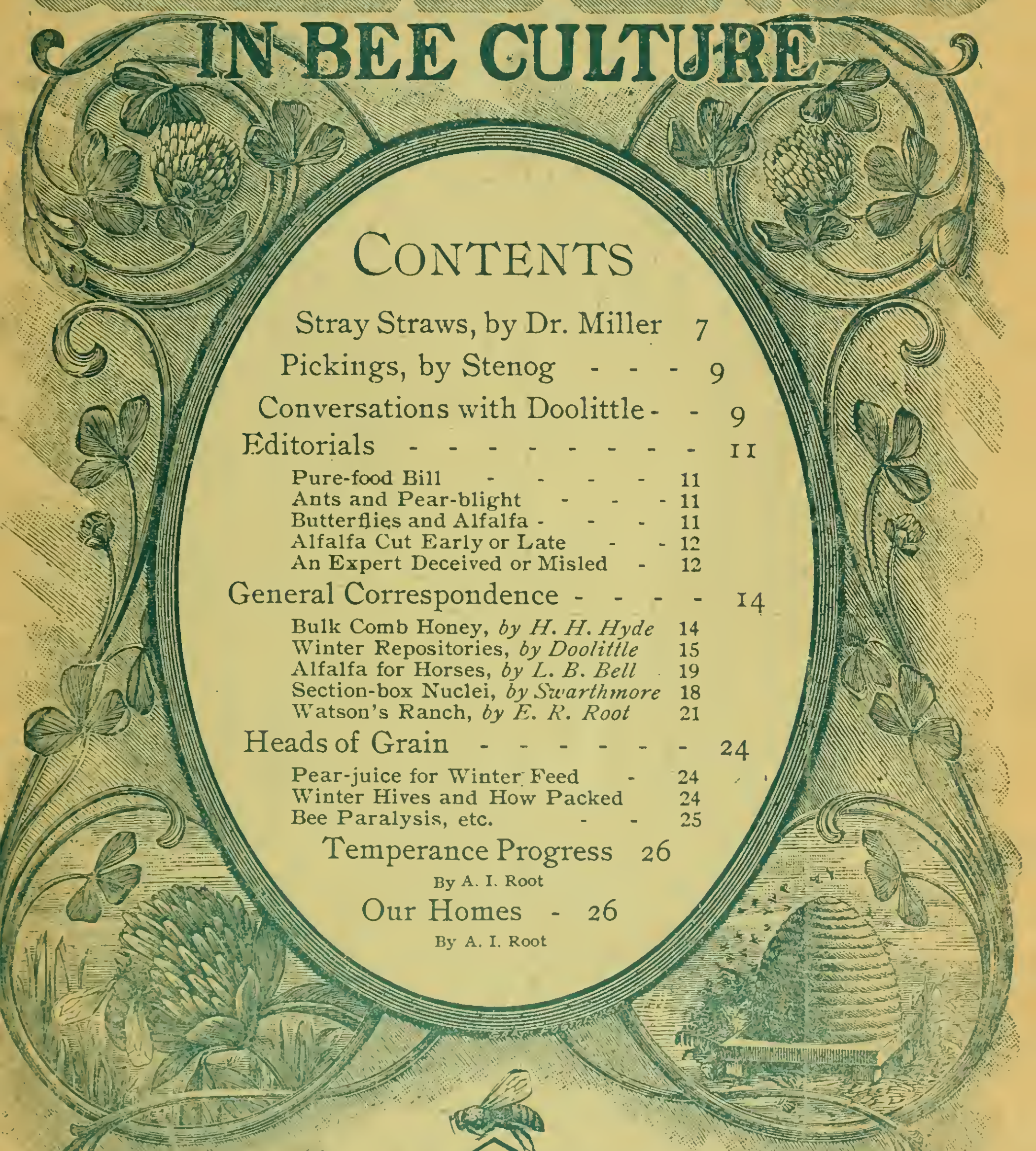

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A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

New York.—Not much demand for comb honey. Receipts are not large, but more than is wanted now. We quote fancy, 15@15½; No. 1, 13@14; buckwheat, 12@13½. Beeswax, 28@29, and good demand.

Francis H. Leggett & Co.,
Dec. 22. Franklin and Varick Sts., New York.

Kansas City.—Market steady at quotations. We quote fancy white, per case of 24 sections, $3 50; No. 1, $3.40; No. 2 and amber, $3 25. Extracted white, per lb., 7@7½; amber, 6@6½. Beeswax, 27@30

C. C. Clemons & Co.,
Dec. 20. 306 Grand Ave., Kansas City, Mo.

Philadelphia.—Comb honey selling very freely, with light arrivals We quote fancy white, 16@17; No. 1, 15@16; No. 2, 14. Extracted, fancy white 8; amber, 6@7. Beeswax, firm at 30. We are producers of honey, and do not sell on commission.

Wm. A. Selser,
Dec. 23. 10 Vine St., Philadelphia, Pa.

Denver.—Demand for both comb and extracted honey light, and we do not expect any improvement until after the holidays Fancy white comb brings $3.50 per case of 24 sections; No. 1 white, $3 10@$3 25; No. 2, $2.75. Extracted, 7½@8⅓ per lb. Beeswax, wanted at 22@26, according to color.

The Colorado Honey Producers' Ass'n,
Dec. 22. 1440 Market St., Denver, Col.

Cincinnati.—The comb-honey market is a little quiet, as almost everybody is filled up and there is hardly any new coming in. There is no change in prices, and we quote same as follows: Fancy water white, 16; off grades, less The market for extracted white clover shows a slight advance. Fancy white clover brings 8½@9; alfalfa water white 6½@7½; amber, if any thing, has weakened —quote same in barrels at 5¼@5½. Beeswax, 27@28

C. H. W. Weber,
Dec. 22. 2146 Central Ave., Cincinnati, Ohio.

San Francisco.—Prices of honey remain the same as when last quoted. The season's honey crop is now all out of the hands of producers; but as honey is only used as a flavoring for glucose there is sufficient on hand for that purpose, and as the compounding of glucose and honey is very profitable at present prices the wholesale price is not apt to advance, save for comb honey.

E. H. Schaeffle,
Dec. 18. Murphys, Calif.

New York.—The market on comb honey is dull and inactive While the supply is not large the demand has fallen off to a large extent, and prices show a weakening tendency. Fancy white, 15, No. 1, 14; No. 2, 13. buckwheat, 10@12. Extracted white, 7½; light amber, 6½@7; dark, 5½@6. Beeswax, firm at 28@29

Hildreth & Segelken,
Dec. 23. 265-7 Greenwich St., New York City.

For Sale.—Light and buckwheat extracted honey in cans and kegs; sample, 8c.

I. J. Stringham, 105 Park Pl., New York City.

For Sale.—Extracted honey, from alfalfa, at 7½c for No. 1 select, 7c for No. 1, 6½ for No. 2; discount on 1000-lb. lots. Send for sample.

D. S. Jenkins, Las Animas, Col.

For Sale.—White extracted honey from alfalfa in 60-lb cans, at $4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, $4.20 each. Prices on small cans and pails on application.

M. P. Rhoads, Box 216, Las Animas, Colo.

For Sale.—Alfalfa water-white honey, 60-lb. cans, two in a case, at 7½c; fancy basswood in 250-lb. bbls., 8c; same in 60-lb. cans, two to a case, 9c. We buy and sell for cash only.

E. R. Pahl & Co.,
294, 296 Broadway, Milwaukee, Wis.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

Wanted.—Honey and beeswax. Mail sample, and state price delivered here.

C. H. W. Weber,
2146, 2148 Central Ave., Cincinnati, Ohio.

Wanted—Comb and extracted honey. State price, kind, and quantity.

R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application Sample by mail, 10 cts. to pay for package and postage.

Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale.—Several thousand pounds comb honey in Danzenbaker 4×5 sections. Shall commence filling orders in August.

Wm. Morris, Las Animas, Col.

For Sale.—Good quality amber honey, gathered from celandine and buckwheat, in 60-lb cans, 6 cts. per lb., f. o. b. here; free sample.

O. H. Townsend, Otsego, Allegan Co., Mich.

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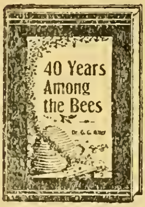
"40 Years Among the Bees,"

BY DR. C. C. MILLER.



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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
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Stray Straws

By Dr. C. C. Miller.

HAPPY NEW YEAR!

THAT PICTURE of A. I. Root, page 1030, looks so natural that it makes me kind o' lonesome to have a good talk with him.

A HORSE so bad with rheumatism that he was only fit for light work was badly stung by bees, and then he was as good as ever.—*Prak. Wegweiser.*

A COLONY having 11 frames of brood increased in weight from May 2 to 6 33 pounds; another of nine frames increased only half as much!—*Schweiz. Bztg.* Was not that exceptional? With a fourth more brood I should expect *more* than a fourth increase of stores, but hardly twice as much.

PROF. G. DE BUNGE says in *Zeitschrift fuer Biologie* that, among the hydrates of carbon which serve as foods, honey holds an exceptional place. Of all the sugary matters, honey is the only one containing iron; and, strangely enough, almost exactly in the same quantity as found in white bread. [Put this down as another point in favor of honey as food.—ED.]

YOU ASK what more I want than shaking or brushing, Mr. Editor. I want something that will not deplete a colony of its brood — its future bees. [But when one practices the double-drive plan of returning all the hatched brood to the first drive of bees, he does not deplete a colony; and, if I judge rightly, the majority of the shakers or brushers practice the second drive.—ED.]

I WANT that index for 1902. If I have to take my choice between that and the next number of GLEANINGS, I'll take the index; but I'd rather have both. [You shall have it. I suspect there are many others who have not written for the index who nevertheless want it. We shall be glad to send them a copy any time they call for it. A volume of a periodical, without an index, comes next thing to being worthless—especially so if time is any factor.—ED.]

Luxemburg Bztg. relates that a number of drones and workers freshly killed were laid at the entrance of a hive in the evening. Nightingales came and devoured the drones but did not touch the workers. Is it not possible that some other birds have the same discrimination? [Quite likely, although I have seen king birds catch common bees on the wing. The bee is caught at the waist, and crushed instantly. The bird then alights on a perch, and other observers have said that his birdship chews away at his victim, keeping the *sting* always *out* of his mouth, until he has extracted the honey and the juice, and then drops it. This part of the performance I have never witnessed, although I have repeatedly seen the act of catching.—ED.]

WE WERE TALKING, Mr. Editor, about a colony that *never thinks* of swarming, and then, p. 1012, you say, "But the colony you think never thinks of swarming may swarm just the same." Well, you *are* incorrigible. We were not talking about what *I think.* We were talking about *a colony that never thinks of swarming*—not one that *I think.* I've no secret by which I can know that a colony will not swarm, but I do not despair of finding some feasible plan of dealing with a colony that will leave it without the desire to swarm, and such a supposed case I was talking about. [Right you are; but, admitting all that, the apiarist must somehow have some means of knowing whether a colony will ever think of swarming. If you can not get that knowledge, then your never-think swarm has no practical value.—ED.]

COMPARING South Florida with the North, H. F. Hill says in *Review* that in Florida bees consume vastly more stores; the period of a queen's useful life is reduced about one-half; combs kept in an open shed from season to season as at the North would be destroyed within a very few days by the moth larvæ; and whereas in the North quantities of comb honey can be stored in the fall without fear of deterioration, "in the humid atmosphere of South Florida it would most likely become worthless as a merchantable product within a week after being taken from the hive." [This is a condition that prevails in other portions of our country that are warm. The bee-keepers in the extreme south do not need to worry about winter, but they do need to be concerned as to whether the bees have stores enough.—ED.]

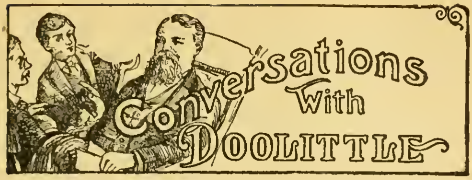
PHACELIA seed is advertised in GLEANINGS, but no one has told us yet about its value as a forage-plant. If it has no value in that direction I wouldn't give much for the seed. [We had phacelia seed in our catalog some 20 years ago, but there was so little call for it that we dropped it out. Another thing, it is regularly advertised in the principal seed catalogs at from 5 to 15 cents a packet. You can get it of Thorburn, Henderson, Childs, or Vaughan. They catalog several different varieties, but say not a word in any of them of its value as a forage-plant, although Thorburn says it is good for bees. If it has a value for stock, it must be that it has never been discovered until of late. Better buy a packet and test it, and see if the horses and cattle will eat it. It may be that, like sweet clover, they may be *taught* to eat it. —A. I. R.]

YOU HAVEN'T the right answer to that linden-seedling conundrum, p. 1011. The seedlings come up under the row of 25 or more trees leading down to the road, and neither horses nor other stock have any chance at them. One tree is right in front of the house, and the seedlings come up in the grass, and then disappear the same as the rest. [Ernest's answer may not be right, but I insist that *mine* is. The seedlings can not grow if hindered by grass and weeds, and especially where the mother-tree takes all the nutriment and moisture. Just as soon as there is a second leaf on, take them up and transplant them into a good rich bed. As their natural native home is in the woods, this bed should be shaded by trees in the hottest part of the day, or, better still, by a slatted frame of lath, just as we shade ginseng, evergreen seedlings, etc. I prefer the slatted frame for shade, because, if it is in the shade of trees, said trees are liable to take the moisture and nutriment from the ground. Now, doctor, am I not right about it?—A. I. R.]

THE PERFORATIONS in the cappings of foul brood, says the *British Bee J.*, are because the bees never finished capping the cells or for some unknown reason opened them again. At the Chicago convention I understood N. E. France to say that they were caused in some way by the gases of the decaying larvæ. Strange that so little seems known about it. By the way, I wish you could have heard that man France talk about foul brood. I was inclined to think it a mistake to give a whole evening to so foul a subject, but afterward concluded the mistake was in me. He made it intensely interesting. [From my own observation, after having examined hundreds and I might say thousands of specimens of foul brood that have been sent us by mail, I am strongly of the opinion that Mr. France is right. Around the perforation it will be noted that the capping has a greasy thinned-out look as if there had been a gradual disintegration of the wax until it became so thin at the center that a hole occurs. I have somtimes thought that the bees attempted to open up these cells, and, getting disgusted with their job because of the foulness of their contents, leave the cells barely opened. But I think the other theory is more tenable.—ED.]

DR. GALLUP has announced in *American Bee Journal* the discovery of something like an unbilical cord in young queen bees, and the idea seems to be received with some favor. C. P. Dadant says in that journal: "If there is an unbilical cord—and there is one if Gallup and Doolittle have not mistaken something else for it—it is time that our scientists found it. . . . But if there is an unbilical cord, it surely exists in all the bees." And if in all bees, why not in all insects? The idea that something playing so important a part in insect life—something that can be seen with the naked eye—should have entirely escaped the observation of all the keen observers who have studied the bee up to the present time is something past easy belief. It is easier to believe that somebody's dreaming. [Some way I can not enthuse very much over this umbilical cord. I did not suppose that the organ belonged to any but mammals. It appears to me that somebody is wading in deep water.—ED.]

FRIEND A. I., that "physical culture" business is a fine thing. You can't be in the best condition all over unless your muscles are worked all over. Many a dweller in the city might add 20 per cent to his life by joining a good physical-culture class. But you're just right, that a proper ration of physical labor at useful work out in the blessed country air is worth all the physical-culture classes in the world. [The trouble with ordinary productive labor is that it is liable to *over*-develop one set of muscles, leaving the others neglected. Scientific physical culture aims to develop all the muscles alike, and not to overdo any of that developing. There are those, however, who practice physical culture in their homes who very often overdo it. I may have more to say about this, as I happen to be one of those who are deriving a great deal of benefit from physical culture of five minutes a day in the house or outdoors. Every muscle and organ of the body is stimulated; and if I live ten years longer it will be because of that five minutes' practice per day. If our readers desire me to give cuts and illustrations I will tell what I know, and not charge them a cent.—ED.]



To-day we start the glad new year
With resolutions strong
To do the right, to aim up high,
And grapple with the wrong.

* * *

REVUE INTERNATIONALE.

The *Swiss Bee Journal* says, in speaking of honey as a cure for burns: A child two years old was severely burned on the arm, in boiling water. The member was immediately bathed in honey, and wrapped in a linen cloth. The pain ceased immediately, and the healing was very rapid, the honey keeping the air from the burn. The bandage was changed every day. It was easily removed, without hurting the child, by first moistening the cloth with warm water.

Mr. Kyburz, in the *Swiss Bee Journal*, compares the Dadant, Burki-Jeker, and the German (Normalmass) hives, they having respectively a capacity of 150, 100, and 55 liters. He finds that bees in the small hives never reach a normal force. A hive of 150 or 100 liters has its space better filled than does one of 55 liters. The weight of two colonies, one having 11 frames of brood, the other 9, shows for the first a net increase of 15,050 grams, and for the second, 7450 grams, from the 2d to the 6th of May.

* * *

It now seems that one of the good medicinal properties of honey is due to the presence of iron—one of the indispensable elements in pure blood. Prof. G. de Bunge, of Germany, says that, of all sugary substances, honey alone contains iron; and, strange to say, the quantity is just about the same as that found in white bread. In 2 lbs. of liquid honey he found 17-hundredths of a grain of salt of iron; and for this reason honey occupies among the hydrates of carbon, which serve as food, quite an exceptional place.

* * *

The editor says one of the things most to be dreaded in the apiary is Monsieur le Mole. "The mole makes a nest of dry leaves in the hive itself, and there, finding food and shelter, it lives like a rat in a cheese. It eats honey. The mole is easily recognized. It has a tail as long as that of a mouse, but the animal is larger. Its skin is a beautiful white on the under side, and of a reddish brown on the back. It is still more remarkable for its eyes, which are large and prominent. It is a bad thief." It is a long time since any complaint has been made against the mole in this country. A little piece of wire netting would keep them out.

* * *

A Belgian bee journal tells of a beekeeper there who has discovered that some birds, at least, will kill drones but never touch a worker. He killed a dozen drones and six workers and put them on a board in front of a hive. This was to test the discriminating powers of the nightingale, which bird seems to be plentiful in that country. In a few moments one of these birds alighted on the board and took the drones but left the workers, seeming to know that the latter were loaded, and not fit for the crop of a bird. We could spare a few workers here for the sake of a few nightingales.

Pickings from Our Neighbors' Fields
By
"Stenog."

RAISING QUEENS; BEE-CAVES.

"Good evening, Mr. Doolittle. I ran over a little while to-night to have a talk with you about something I am very much interested in. I am thinking of going into the queen-rearing business next year; and in order to plan rightly I should like to have you tell me about how many queens can be sold from one nucleus colony in one month. If I can tell this it will help me in deciding how many nucleus hives to make this winter."

"In answering this question, Mr. Jones, I will say that very much depends on the weather, the loss of queens when going out to meet the drones, more being lost some seasons than others, and whether you give the nucleus colony virgin queens or insert nearly mature queen-cells."

"I did not suppose that I could introduce virgin queens successfully, so had not thought of the virgin-queen plan. Is such plan generally successful?"

"Some practice the virgin-queen plan and are successful; and where this is done you might succeed in sending off three queens a month from one nucleus. But, either because I am unskillful or my locality is different, introducing queens from one to three days old from an incubator or queen-nursery has proven an unsafe method with me, and one that causes more labor and worry than the time gained would compensate for."

That is as I had expected it would be with me, from the few trials I have made with virgin queens, and that was the reason I asked about the success in the matter. Supposing I use the ripe-cell plan, how many would I be likly to get in that way?"

"By using the cell-plan, and having a system perfect enough so that the queen may emerge from the cell within twelve hours after being given to the nucleus, you will usually have a laying queen in said nucleus in ten days from the time of giving the cell. Then in order to have your nucleus hold its own as to bees, this queen should be allowed to lay four or five days before sending her off."

"Why should she stay so long? I should think she would lay enough in one or two days to keep the nucleus good."

"Undoubtedly she would did the bees bring her eggs to perfection; but I have found that, as a rule, if the queen is taken away when the combs contain only her eggs, the bees will remove or devour the most of them; when if a part have hatched into larvæ, all will be preserved, and in this case our nucleus is strengthened in bees according as the queen lays eggs."

"Then I shall not be likely to get three queens a month from a nucleus?"

"No, I think not; for we have yet to consider the loss of queens on their wedding-trip, as hinted at before, when in some seasons quite a few fail to return, while others are sometimes balled on their return till they die, or are valueless, either for sending off or for home use; and any or all of these things make the matter of any certain number of queens from any nucleus, in any certain time, very uncertain."

"What has been your average?"

"My average number from a nucleus, during the past fifteen years, has been about two a month, and that is about the way I feel safe in calculating. Some nuclei do better, others not as well, so it is always well to calculate on having a few more nuclei than you really think you will need to fill all orders; and even then if your case proves any thing like mine you will be obliged to return money for some unfilled orders at the end of the season."

"Well, perhaps we have talked long enough on this matter. I think I can calculate very well from what I have learned. I now wish to ask you something about a winter repository for my bees for another year. I have determined that this shall be the last winter I will leave all of my bees outdoors, and I wish to commence operations this winter while I have leisure time to work."

"What kind of repository did you think of building?"

"There is a clay bank near my bee-yard. If I dig into this bank a hole some 24 to 30 feet long, 10 feet wide, and 7 feet deep, walling the same with stone, the front end of which will be out of ground considerably, will it be too damp for the bees?"

"I think not if well drained, and probably it would not be too damp if not drained at all, only so that the water may not come up about the hives, should a sudden freshet occur during the winter."

"But do you not consider dampness injurious to bees?"

"No, not under certain conditions. I believe I am right in saying that none of the bee fraternity have ever positively proven that dampness is injurious to bees. May I ask a question? Is not a damp cellar the best to winter bees in? A moist air is promotive of health in our houses — why not in bee-cellars? In many places, schoolrooms are not considered fit for pupils unless there is a dish of water on the stove or other heater, continually giving moisture off into the air."

"Is it not thought that dampness causes bee-diarrhea?"

"It is so stated by some, but I believe dampness in winter repositories is one of the agencies in causing bee-diarrhea *only* when the temperature is so low as to condense the vapor on the inside of the hives and combs. In all of this talk on this subject it would be well to consider the difference in effect on animal life between a warm damp atmosphere and a *cool* damp one for cellar wintering. It is the *cold* damp atmosphere that is to be dreaded; and unless that front end of your proposed cellar is well covered with earth I should fear too low a temperature during cold spells in winter, which low temperature would cause the dampness to be detrimental to the bees. I should be much more concerned to have the temperature entirely in my control than about dampness."

"What should the temperature be to secure the best result?"

"From 43 to 48 will do pretty well; but a steady temperature of 45 is as near perfection as can well be obtained. Give me a cellar that will not vary from 45, and good stores, and I have little fear as to how the bees will come out in the spring. This I say after many years of successful cellar wintering, and after watching others who have invariably wintered their bees well also."

"Well, how can I fix that front end?"

"After you have your cellar or bee-cave built, cover the front end over with from three to four feet of earth, and over the whole put a roof so that the dirt may be kept dry at all times of the year, and I think you will find you have something that will be a joy to you for years to come, no matter whether you have two hundred colonies or twenty to winter therein."

"How deep would you go into the bank?"

"The deeper and further back you go into your knoll the more even will the temperature be likely to keep; and the more even the temperature, if it is as high as 45 or above, the more successful will the bees winter. I have used successfully a cellar (very similar to the one you propose building) for 26 years, with the exception of one winter when I used an oil-stove in it, when I lost heavily through the poisonous vapor given off into the room by this stove."

"I must be going now, and I thank you for your advice on all of the many points we have touched upon."

Editorial
By E. R. Root.

We have a larger amount of good available matter on hand awaiting insertion in these columns than we ever had before. Some of it may not be published for two months yet. Those of our friends who have sent us some good articles will understand why they have been delayed.

AN ENCOURAGING OUTLOOK FOR CALIFORNIA.

M. H. Mendleson, of Ventura, California, on Dec. 12th writes: "We are now having a spleudid rain. Last season at this time the soil was nearly dried up." This year he says the ground is wet down nearly three feet, and present indications go to show that this will be the wettest winter they have had in years. This, if it means any thing, means that 1903 may be a big year for honey.

ANTS THE CHIEF MEANS OF SPREADING PEAR-BLIGHT.

The statement is made in *American Gardening*, referring to pear blight, that the blighted twigs exude a milk-white liquid; that this fluid the bees are likely to get and spread to the flowers of healthy twigs which they may visit. The bees would have no occasion for sucking up the virus, and there is no use in laying the blame on them, where common ants (very numerous in California where the blight is the worst) crawl all through it and thence all over the trees. While the bees may spread the virus from a diseased to a healthy blossom, it is extremely improbable that they should seek out the poisonous sap from a diseased twig.

While I was in California looking through those great pear-orchards, so fearfully blighted, I saw ants in great numbers crawling all over the diseased and healthy twigs, and some of the twigs were covered with that deadly milky fluid. I believe the time will come when it will be proven that the bees are not the chief means of spreading the blight; that those ever-present ants, that are continually crawling over the trees from top to bottom, will be declared to be the real culprits.

BUTTERFLY VS. BEE AS AN AGENCY FOR BLIGHTING PEAR TREES; WHAT THE BUTTERFLY IS DOING IN THE WAY OF DESTROYING ALFALFA, PREVENTING IT FROM YIELDING HONEY WHEN IN FULL BLOOM.

While I was sojourning in Arizona I was told that one of the worst pests of the alfalfa was a little yellow butterfly that hovered over the great fields in such immense numbers that the air was almost yellow with them at times. I was told that they would eat the blossom, injuring the plant and cutting off the exudation of honey. Now it appears, from an article in the *Weekly Tulare Register*, Tulare County, California, for Dec. 12, that the butterfly may be also responsible for the spread of pear-blight; and why shouldn't it be, when there are such countless numbers of them at just the right season of the year? Mr. A. D. Fleming, in the issue above named, has this to say:

> What has become of the Hanford fruit-men who are accusing the honey-bees of spreading the pear-blight? They said they were going to inclose last spring a few of their pear-trees while in bloom, those that were not affected with the disease, to see if the bees had not been spreading the disease. My fight is not against the poor honey-bees, but for them. I want to know what we are going to do with the yellow butterflies that are about to starve the bees to death. They are intermediate in size and when the alfalfa gets in bloom they are there by the millions to stay as long as the bloom lasts, and to suck the last bit of sweetness out of the bloom. I should judge that there were enough alfalfa-blossoms on my ranch to have made a thousand pounds or two thousand of honey. But, alas! I have only three stands of bees; and every time I examined their supers they proved to be empty, save one that made some 5 pounds of honey. It was about all they could do to live. The poor bees would come in from foraging so weak, so tired, and perhaps hungry, that they would fall down at the mouth of their hive exhausted, scarcely able to get in Starving the bees is not all that Mr. Butterfly has done He blights the alfalfa bloom, which prevents it from seeding well, They are like the grasshoppers, worse in some places than others. They struck my alfalfa so hard that it was impossible for any of it to go to seed.
>
> Tulare, Dec. 10, 1902. A. D. Fleming.

PASSAGE OF THE PURE-FOOD BILL IN THE NATIONAL HOUSE OF REPRESENTATIVES.

Recent press dispatches show that this bill, which has been so long before the public, and for the enactment of which there has been such a strong demand, has finally passed the lower House by a good substantial majority. The majority is so strong that it would seem as if it ought to go through the Senate with a rush; but it is very probable that, this session being a short one, the bill may be "held up" in committee by "influence" brought to bear by the food-mixers or glucose people. We would urge every one of our subscribers to write to his Senators, urging the support of this most excellent measure. Don't delay writing, but attend to the matter just as soon as you read this item. Go to your desk and write a letter at once. Let us keep the iron hot, for there is no more important work before the bee-keepers of our land just now than this. The following is a copy of the item in one of the press dispatches:

> Washington, December 19.—The House to-day passed the pure-food bill by a vote of 72 to 21. There was not a quorum present, but the point was not raised by the opponents of the measure. The speakers to-day were Messrs. Richardson (Ala.), Hepburn (Iowa), Gaines (Tenn.), and Schirm (Md.), for the measure, and Mr. Chandler (Miss.) against it.
>
> The bill prohibits the introduction into any State or Territory or the District of Columbia, or from any foreign country, or the shipment to any foreign country, of any article of food or drug which is adulterated or misbranded. The above inhibition is made to apply

to any one shipping or delivering within the regions named any such food so adulterated. Adulterations in the bill are defined as follows:

In the case of drugs, if sold under a name recognized in the United States pharmacopeia, and the drug differs from the standards of strength, quality of purity, as determined by the test laid down in such pharmacopeia at the time of the investigation, so that its strength or purity falls below the professed standard under which it is sold; if it be an imitation of or offered for sale under the name of another article, and in the case of a confectionery, if it contain terra alba, barytes, talc, chrome yellow, or other mineral substances, or poisonous colors or flavors.

In the case of food, when any substance is mixed with it so as to lower or injuriously affect its quality or strength so that such product when offered for sale shall tend to deceive the purchaser.

If it is falsely labeled as a foreign product, or imitation of another substance of a previously established name, or which has been trade-marked or patented. If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, or if it is the product of a diseased animal or one that has died otherwise than by slaughter.

GROWING ALFALFA; ITS FOOD VALUE; IS IT A FACT THAT IT IS MORE PROFITABLE FOR THE RANCHER TO CUT THE ALFALFA BEFORE OR JUST AS IT BLOOMS THAN AFTER IT HAS GOT INTO FULL BLOOM?

Bulletin No. 114 of the Kansas State Agricultural College Experiment Station has reached my desk. It contains a great deal of valuable information on the subject of alfalfa-growing, and I only wish that I could publish the entire text of it. As it is, I find it possible to place before our readers only a few paragraphs from it.

In some of my late articles I have spoken of the value of alfalfa hay as a food for stock. In one case I mentioned that 110 pounds of alfalfa hay was equal to 100 pounds of bran for nutritive value. On page 80 of the bulletin above mentioned there is a paragraph that bears directly upon this point, and here it is:

COMPOSITION OF ALFALFA.

The following table, compiled from Bulletin 103, issued by the chemical department of this Station, shows the per cent of digestible matter found in various feeds. The percentage is calculated on the material in the condition it would be found when fed:

FEED TESTED.	Protein.	Carbo-hydrates.	Fat.
Alfalfa hay, cut 10 per cent in bloom.	13.24	39.26	0.89
Alfalfa hay, cut half in bloom. . .	11.90	40.26	0.39
Alfalfa hay, cut in full bloom . . .	10.43	43.17	0.69
Red-clover hay	6.58	35.35	1.66
Timothy hay	2.89	43.72	1.43
Prairie hay	0.61	46.90	1.97
Corn-fodder	1.98	33.16	0.57
Kafir-corn fodder	3.22	48.72	1.15
Wheat bran	12.01	41.23	2.87

The digestibility of alfalfa hay, prairie hay, and Kafir-corn fodder was determined in feeding experiments made at this Station by the chemical department.

This table shows that in protein, the most valuable part of our feeds, alfalfa hay cut when one-tenth in bloom is worth ten per cent more than bran. In other words, a ton of good Kansas alfalfa hay will supply as much of the material needed to make growth of lean meat, milk, and blood as 2200 lbs. of wheat bran. The reader can easily make comparisons with other feeds. Kansas alfalfa can be raised, cut, and cured and put in the feed-racks on the average farm for two dollars per ton. The large yield has already been shown in this bulletin. A consideration of the yield, the composition, and the cheapness of alfalfa should be a strong inducement to Kansas farmers to increase their acreage and handle their seedings of alfalfa in such a way as to secure the largest yield and prolong the life of the plants.

It has often been asked how to prepare the soil, how much seed to sow, etc. The following covers the matter quite fully, at least for the region of Kansas, and it would probably apply to all the territory in the semi-arid regions from Iowa down to Texas:

If the soil and the air are moist, the most even stand is secured by sowing the seed broadcast. Cover lightly with a harrow and then roll, unless there is danger from blowing. If the weather is dry or there is much wind, broadcast seeding is a failure. The seed germinates close to the surface of the ground, and the wind dries out the soil and kills the young plants almost as fast as they start.

Generally the best way to sow alfalfa is with a press-drill. Mix the seed with equal parts by measure of coarse corn chop, bran, or fine sawdust; drill and cross-drill, sowing half the seed each way. If either a hoe or disk drill is used, care must be taken not to get the seed too deep; about twelve times the diameter of the seed is the proper depth, if this places the seed in moist soil. The press wheels pack the moist soil closely around the seed, causing quick germination. Occasionally a heavy beating rain will fill up the drill furrows before the seed has germinated, and bury it so deeply that the young plants die before they can get to the surface. In the fall of 1901 this Station lost 12 acres from this cause. This difficulty is not common.

Alfalfa should be sown alone. It does not want a nurse crop. Sometimes a good stand is secured when alfalfa is seeded with some other crop, but many times it fails utterly. Young alfalfa is a delicate plant, and it needs all the moisture, plant-food, and sunshine available; and usually, when it has to share these with another crop, it dies.

But the all-absorbing question, the one that is *important and vital to the bee-keeper* located in the alfalfa regions, is whether it is good practice for the rancher to cut his alfalfa *as or just before it comes into bloom.* Two or three of our correspondents have said of late that there was no cause for alarm, that it was not profitable to cut at such a time. But the statements made in this bulletin would seem to indicate that it is profitable to cut it just as the plant first comes into bloom; and that means then that the bees will not get very much benefit out of it. The melancholy facts (melancholy to bee-keepers at least) are thus stated on page 65:

WHEN TO CUT ALFALFA FOR HAY.

Alfalfa should be cut when not more than one-tenth of the plants have come in bloom. Cut at this early stage, the yield of hay for the season will be much greater than if the alfalfa is cut near maturity, and every pound of hay secured will be worth more for feed.

We cut a strip through a field of alfalfa when one-tenth was in bloom; another strip was cut after full bloom had passed. The strip cut early was nearly ready to cut the second time when that cut after full bloom was being harvested the first time. The strip cut early grew vigorously through the season, and made three cuttings and a good aftermath. The strip cut after full bloom gave a low yield the first cutting, and did not grow sufficiently to yield a good second cutting. Early cutting invigorates the plant.

The late cutting of the first crop seems to injure the plant more than at any other time, and we have found it profitable to cut alfalfa the first time as soon as one-tenth was in bloom, even though the weather was bad and we knew that the crop would spoil in curing. The increased yield from succeeding cuttings over that cut late much more than makes up for the loss of the first crop.

Successful clover-growers the first time they try alfalfa often ruin the stand, so that it has to be plowed up, by waiting to cut until it reaches the stage at which clover is usually cut.

The great value of alfalfa is the large amount of protein it contains, that material in feed that is absolutely necessary for the formation of blood, lean meat, and milk. The higher the protein in alfalfa, the more valuable the crop The chemical department of this Station found the effect of cutting alfalfa at different stages as follows:

	Protein.
One-tenth in bloom	18.5 per cent.
One-half in bloom	17.2 "
In full bloom	14.4 "

The Colorado Experiment Station found the effect of cutting alfalfa as follows:

	Protein.
Coming in bloom	18.5 per cent.
Half in bloom	14.6 "
In full bloom	12.9 "

The Utah Experiment Station for five years cut alfalfa at different stages of maturity, and fed the crop in producing beef. The average production per year per acre was as follows:

	Hay.	Beef.
In first bloom	5.35 tons.	706 lbs.
In full bloom	4.90 "	562 "
Half blooms fallen	4 55 "	490 "

These experiments made in three States—Kansas, Colorado, and Utah—prove that alfalfa cut in the first bloom will give the greatest yield and feeding value.

HOW TO CURE ALFALFA.

The leaves of alfalfa contain nearly four times as much protein as the stems, a ton of dried alfalfa leaves containing as much protein as 2800 pounds of bran. Every effort, then, should be made to cure the alfalfa in such a way as to save all the leaves possible. The method of curing will vary with the condition of the crop, ground, and weather. When alfalfa has made a slow growth, and at the time of cutting the ground and the weather are dry, there is no difficulty in curing. Often, under these conditions, it is safe to rake within a few hours after mowing, and stack a few hours after the alfalfa has been put in the windrows. When alfalfa has made a rapid growth, and is rank and succulent, and the weather and ground are damp, the problem of curing is a difficult one. It is easy to dry the leaves, but the stems will contain much moisture after the leaves are too dry. Alfalfa hay should become so dry before stacking, that, when a handful of stems are twisted together, no water can be squeezed out The most practical way to accomplish this, and at the same time save the leaves, is the plan to adopt, and this will vary with different seasons and places.

There is usually no difficulty in curing any but the first crop. When the conditions for curing the first crop are unfavorable, we have usually found the most practicable methods to be to cut the alfalfa early in the morning, after the dew is off, allow it to barely wilt in the swath, then rake, and before night put in tall narrow cocks After the dew is off the next morning, and the surface of the ground has become dry, we open these cocks carefully, so as not to shatter off the leaves. If the weather is favorable the hay may be stacked in the afternoon; if not, we recock carefully, and repeat treatment until the hay is properly cured.

It was M. A. Gill, I believe, who said we need have no cause for alarm; but when one reads very carefully what is said in this bulletin here quoted he is led to wonder if it is not true after all that the bee business in the alfalfa regions will, after a while, become less and less profitable. If the statements contained in this bulletin are true, the rancher will look to his own interest rather than that of the bee-keeping neighbors round about him; and if he can get help enough at the right time he will cut his hay just before it will be of any value to the bees.

AN EXPERT DECEIVED OR MISLED.

In the Bulletin of the North Carolina State Board of Agriculture at Raleigh, for September, appears a statement to the effect that pure honey may be defined as a nectar of flowers and other saccharine exudations of plants gathered by bees, and stored in cells built at least in part by the bees themselves. So far, so good; but next appears the following remarkable statement:

> Honey is subject to much adulteration, the adulterants (and substitutes) being glucose, cane sugar, and invert sugar, and mixtures of these. "Honey in the comb" is frequently glucose which has acquired more or less honey odor and flavor by being poured into comb from which the genuine article has been drained.

It is bad enough to have lies circulated about us and our business by the ordinary newspaper; but when a supposedly expert man, who is expected to know and understand his business, takes hearsay evidence like this and puts it forth as sober scientific fact, the matter is still worse. A marked copy of this will be sent to the State Chemist, Prof. B. W. Kilgore, who, we hope, will rectify the statement in the next issue of the bulletin. If he thinks it is possible to pour glucose into comb and then cap it over by machinery or by any process whatsoever, so that the stuff will deceive the public or any one else (for that is implied as a result also), we should like to have him prove the fact. Yes, we will pay him one thousand dollars in gold if he can demonstrate that it can be done. Glucose is too thick and too mucilaginous a substance to be poured into comb in such a crude manner as that. In fact, it will hardly pour at all, to say nothing of running into the cells, expelling the air, even if it would be possible to cap the combs over afterward by any art known to man. We trust that Prof. Kilgore will do us the kindness to look into this matter a little further.

ARE BEES NECESSARY FOR THE FRUIT-GROWER AND GARDENER?

We extract the following from the *American Agriculturist* for Nov. 29:

> The cucumber blossomed, but that was about all. Some grew ½ or ¾ inch long, and then shriveled up. Mr Bunce thinks this result was owing to the flowers not being fertilized in the natural way through the agency of bees. When the doors of the tent were opened the bees came in freely, and after that some cucumbers grew large enough for small pickles. Before the bees entered not a single cucumber set. The melons did not do well, but this might be partly in consequence of their having been planted late.
>
> The presence of bees in a tent is considered by Mr. Bunce indispensable to success. He thinks if the doors of the tent were left open in the middle of the day, bees would come in. When asked if other and unwelcome insects would not also enter, he replied that the moth producing the tobacco-worm flies only at night He says *strawberries have been grown under cloth* on Long Island with brilliant success, the fruit maturing two weeks earlier than in the open. But bees must be allowed free entrance.

The article is headed "Growing Vegetables Under Glass," and gives a record of a number of recent experiments. I have clipped only a small part of the article, and mainly to show not only the value of the bees but the absolute necessity of them under some circumstances for a successful crop; and in regard to this matter of cloth protection our readers may remember the report I made from our Ohio Experiment Station. I think there is a new field open, of considerable promise, for growing many products under cloth.—A. I. R.

GENERAL
CORRESPONDENCE.

BULK COMB HONEY.

Its Demand; Its Production Profitable.

BY H. H. HYDE.

A few years ago bulk comb was practically unknown; but to-day there is scarcely a bee-keeper in the United States who has not heard of it and how it is produced; and it is now the principal product of the Southwestern Texas bee-keepers. Its production is rapidly gaining ground, not only all over Texas, but is gaining a footing in Nebraska, Colorado, and Utah. The demand from the consumers for this article is rapidly growing, and is keeping far ahead of its production; and of this fact the bee-keepers are rapidly catching on. There are many reasons why it is gaining a hold with both the consumer and the producer, and especially the former. When the consumer buys a can of bulk comb honey he feels sure that he is getting a pure sweet, just as the bees made it. He feels that he is getting full weight, and he knows that he has bought it at a less price per pound than he could have bought section honey. Then he has his honey in a nice bucket where the honey can not break or lose out when cut into; and when he has eaten out the honey he has a useful pail left. These are some of the reasons why the consumer prefers bulk comb honey to section honey. I am talking of the majority of the people. Of course, there are the wealthy who will always buy a limited quantity of section honey because it is high in price and has to them a fancy look.

Bulk comb is produced in either full bodies or shallow Ideal supers. If the former is used it is hardly practical to fasten in full sheets of foundation, as the frames can not be wired because we expect to cut the honey out; but with the Ideal frames we can use full sheets if we so prefer. Ideal supers and frames are preferred generally, because they are not so large, are not so heavy to handle, are nearer the right amount of room to give a colony at one time, and they can be freed of bees much quicker than full bodies. To free them of bees we simply smoke down between the frames well, and then pry the super loose and jounce it, when it will be found that most of the bees will fall out. They can then be stacked up and a hole left at the top, when in two or three hours' time the last bee will have left the supers. Then, again, the supers and frames are nice for extracted honey, should the bee-keeper in any event desire to so use them; and, in fact, in putting up bulk comb it requires about one third extracted honey with which to put the comb up.

In packing bulk comb we cut out the comb nicely and place it in the cans, and afterward pour in extracted honey to cover the comb and fill up the crevices, and in this way about one-third extracted honey goes in; and it must be remembered that this extracted honey goes in at the comb-honey price. It has been found both practical and profitable to produce both comb and extracted honey in the same apiary, and, in fact, on the same hives at the same time; for many have found that it pays them to have one super of combs on top of the regular brood-nest so that the queen may fill it with brood before the honey-flow, if she likes; and when the flow comes these supers catch the first nectar; and as soon as the flow is on and the bees have commenced to secrete wax, this super of combs is lifted and the empty frames of foundation placed between them and the brood, which is the most effectual way of baiting bees into the supers; and it will be found that, where colonies are so worked that swarming is kept in check, if not entirely prevented, the queen is left in entire possession of the regular brood-nest; and by the time the flow is over, the brood will have hatched from the shallow super of combs, and the bees will have filled it with extracted honey; and this is just what we shall want in putting up our comb honey, as we have already shown that at least ⅓ the honey must be extracted with which to pack the comb. It has been demonstrated time and again that bees will store all the way from 50 to 100 per cent more honey when worked for bulk comb than they will when worked for section honey; and many believe (the writer included) that, where the bees are worked as outlined above, nearly if not quite as much bulk comb honey can be produced as could be produced of extracted honey alone; and especially does this hold good where the localities have fast flows of honey, in which a great amount of wax is always secreted, whether there are any combs to build or not.

We will now show the relative cost of bulk comb to section honey. When we buy bulk-comb supers and frames we have bought them to use for years; when we buy sections they are for only one season's use, whether they are filled with honey or not. Then we have to have costly separators, followers, etc., that soon give out to be replaced. When we go to ship we have to have costly glass-front shipping-cases, and these cases in turn are packed in crates for shipment. When we pack section honey we have to take lots of time and patience to scrape the sections. When we pack bulk comb honey we buy cases of cans and cut the honey out into them.

When we get ready to ship we have to pay a high rate of freight on section honey, and run the risk of having a good part of it badly damaged or destroyed altogether.

When we ship bulk comb we get a low extracted-honey rate, and have the assurance that it will go through as safely as if it were extracted honey. When we go to prepare supers for the harvest, all we have to do to our bulk comb supers is to scrape the top-bars a little and fasten in the foundation; but with section honey we have to make up shipping-cases and sections, and spend a long time putting the foundation in just right. When the supers are put on, the bees go to work in the bulk-comb supers at once, and in a big cluster, thereby forgetting to swarm; but with section supers the bees have to be carefully baited and coaxed into the supers; and when they get there they are cut off into 24 or more small compartments which they have to try to keep warm; and to get them sealed out to the wood we have to crowd the bees, thereby losing honey. By crowding we lose as much honey as we do when the supers are first put on by reason of the bees being slow to enter the sections. Just how much honey is lost by the bees being slow to enter the sections, how much is lost by crowding, and how much is lost by swarming, I am unable to say: but it is considerable.

You may take the items in the production of the two honeys from beginning to end, and there is not an item that is not in favor of bulk comb honey, except solely in the matter of price received; but, friends, where unbiased men have tried the production of the two honeys side by side, and carefully taken into consideration every factor, they have invariably found that they can make at least 50 per cent more money producing bulk comb; and many have placed the per cent much higher.

There is another fact: Not one of the men who once quit section honey has gone back to it. We were ourselves large section-honey producers several years ago, but have been converted, and have disposed of most of our section-honey supers, and to-day have a large pile of them awaiting a purchaser.

You may say, "I have no trade or demand for bulk comb honey." I will say that all you have to do is to produce it and offer it for sale, and you will soon have a trade that nothing but bulk comb will satisfy. You may say, "But I shall have to ship my honey, and what then? There is no market for this new product." I will say, take your honey to the cities and offer it yourself, and you will find a ready and appreciative market, and one that will next year demand more bulk comb, and the grocers will have to order their supplies from you. There is no question that a market can be found. The bee-keepers of Texas have found a market for more than they can produce, and I take it that the bee-men of other States have the same intelligence and the same "get up and get" that the Texas bee-men have.

The packages used in putting up this article are now most largely 3, 6, and 12 lb. tin friction-top pails that are put up in crates holding 10 of the 12-lb. cans; 10 of the 6-lb. cans, and 20 of the 3-lb. cans. There is also some demand for bulk comb in 60-lb. cans, 2 in a case, the cans having 8-lb. screw-tops. These are sometimes ordered where the buyer desires to put the honey into glass packages for a fancy trade.

In conclusion, I wish to refute the statements made, that the production of bulk comb honey was the old-fogy way of honey production. I assure you that it is not, and that it requires as much skill and as fine a grade of honey as it does for section honey. I also assure you that the consumers are behind this move, and that it is only a question of time when the production of section honey will almost have disappeared.

Should there be any who read this, who desire further information, I shall be glad to give it.

Floresville, Tex.

[In my southwestern trip of a year and a half ago I was fully convinced that bulk honey or chunk honey was getting to be more and more in vogue, both among progressive bee keepers and the consumers themselves. Still, I found some bee-keepers who thought it would be better to educate the consumer to the use of section honey, believing there would be more money in the production of such an article. But I must admit that Mr. Hyde has advanced some very strong arguments in favor of chunk honey; and why should we bee-keepers not cater to the various demands? One locality will use large quantities of candied extracted honey; another will use nothing but crystalline liquid extracted; still another, fancy comb honey; still others dark honey, almost as black as black strap itself. Cater to what the locality calls for.—Ed.]

ABOUT WINTER REPOSITORIES FOR BEES.

The Question of Temperature and Moisture; Ventilation vs. no Ventilation.

BY G. M. DOOLITTLE.

It is often well to take a look over the past at the end of the year, to see if we have made an advancement, stood still, or gone backward; and if we have stood still or gone backward, then we should make an effort to do better during the year to come. These thoughts presented themselves to me on reading of late, pages 154, 187, 294, 323, 337, 364, 371, 373, 374, 375, 383, 387, and 475 of Gleanings for 1902, on all of which will be found items of more or less length pertaining to wintering bees in special repositories, such as consumption of stores, uneasiness of bees, setting out for a flight, opening and closing doors, etc. From the reports given on many of these matters I can not help thinking that the trend of thought there expressed is backward rather than toward advancement. It will well repay all those interested in wintering bees in cellars and special repositories to go over those pages again carefully, during the long winter evenings that are now before us. I had calculated to notice this matter last spring; but as we were into the summer before some of the articles appeared, I thought best to wait till this time, when the matter would be appropriate again. I can not help looking on any plan of wintering which requires the looking after ventilators all winter, the opening and closing of doors nights and mornings, and the setting of the bees out for a flight during winter, together with a consumption of 20 lbs. of honey per colony on an average (after all that work) as faulty, when apparently bees winter equally well, if not better, on the non-ventilation plan, with *absolutely no work* during winter, and with an average consumption of only about 6 lbs. per colony. On pages 154 and '5, I was invited to try the large 16-inch-square ventilator; but I thought best to wait about the matter till I saw the outcome with those who were trying it, which outcome is given on some of the pages referred to at the commencement of this article. Now, Mr. Editor, please allow me to lay alongside of these reports my own for the winter of 1901.

The bees were gotten out of the cellar (regarding what the cellar is, see pages 187 and '8, Gleanings for 1902, and A B C book) on the 15th, 16th, and 17th of April, and came out in excellent condition. The loss was only one out of seventy, and that one was queenless with but few bees when put in the cellar. The consumption of stores from the latter part of September, at which time they were prepared regarding their winter supplies, to the time of setting out, averaged about 6 lbs. to the colony. This number of pounds was not ascertained by weighing wet hives in the spring, as Mr. Bingham would have the readers of Gleanings suppose (page 294), for I do not estimate stores by weighing hives and their contents, as he does. I "weigh" the honey in each frame in the fall, and then again in the spring; consequently the weight of the hive (and of the bees) has nothing to do with the matter.

In passing, allow me to say to Mr. Bingham, in answer to his question on page 294, I have never recommended putting bees into winter quarters with as little as from 5 to 10 lbs. of honey; but on several occasions where my *own* bees have been short of stores in the fall I have put them in the cellar with from only 12 to 15 lbs. of stores, and never yet had a single colony starve while in the cellar. The present fall and winter, over half of the colonies have less than 16 lbs. of stores; but where so little is allowed in the fall these colonies need looking after as soon as brood-rearing commences in the spring, or they may then starve; for with rapid brood-rearing comes a rapid consumption of honey. But, to return.

An even temperature of 45 degrees was maintained in the cellar practically all winter, or during the time the bees were in winter quarters, which was from the latter part of November till April 15th to 17th, or approximately five months. The changes of temperature outside had no perceptible effect on that within, and the bees were aware of nothing except one apparently endless dark night, with a temperature and environment perfectly agreeable to them. After the bees got settled down from being placed in the cellar I went in and found the temperature at about 45½ degrees above zero. When I next went in we had had a month without the snow even softening in the shade, while much of the time during this month the mercury had stood at from zero to eight below, yet I found the temperature inside the cellar at exactly 45 on entering it. Then in the spring it had been so warm from March 20th to the time the bees were set out that all of those 10 to 15 foot snowbanks, spoken of on page 187, were all gone, and the grass quite green; but in going into the cellar to commence setting the bees out, a look at the thermometer found it standing at 45½, or the same it was soon after the bees were set in the fall previous. Here allow me to digress again.

Mr. Bingham says (page 387), "The temperature of the earth below the frost-line is between 32 and 34, yet Mr. Doolittle has no trouble in keeping his bees at about 50. How is that 10 to 20 degrees of heat obtained? I need not say by the consumption of honey — every one knows that." Years ago, when discussing this wintering problem, James Heddon told us that the temperature of the earth a few feet below the frost-line was not far from 42 the year around; and from many experiments made I proved that Mr. Heddon was correct. And as the back end of my bee cellar or cave is ten feet under ground, and over all two roofs, between which there is from three to four feet of *dry* earth, the temperature therein rarely goes lower than 42 when it is shut up, whether there are any bees in it or not. Hence Mr. Bingham's 10 to 20 degrees melt away to only *three* that the bees have to warm by the consumption of honey. And the strange part of the matter is that both Mr. Bingham and Editor Root think I would be so much better off if I would put in a great big ventilator to run the warm air, which the earth gives, out into the cold, so that I could have the pleasure of having each colony consume an average of 14 pounds more of stores each winter, to say nothing of the extra work of attending to ventilators, opening doors, and setting the bees out for winter-flights, besides having a part of them come out weak in the spring, or fail entirely, as Mr. Bingham admits a part of his did, on page 475, and all for the sake of getting rid of dampness or moisture! Let me repeat again, gentlemen, that "dampness does no harm to the bees so long as the temperature is right."

And many of the colonies, nearly half, were made up of united nuclei used during the summer for queen-rearing, all of which came out in excellent shape, and built up to good colonies early in the season, in spite of our unfavorable and wet spring. While Editor Root was reporting his bees uneasy and roaring, only as the doors were opened, my bees were as quiet as they were in December, and the loss of bees on the cellar bottom was scarcely more than six quarts during their whole stay in the cellar. No, no, gentlemen; until you give a better report than you have done I can not afford to put in one of those great 16-inch-square ventilators — no, not even for the sake of testing the matter. But I do not have the least objection to Mr. Bingham, Editor Root, and all others who are so inclined, shutting their ventilators *entirely* for a week or two, or putting their repositories in a condition where an even temperature of 45 degrees is maintained, for "the sake of testing the matter;" for by so doing they may see their way clear not to advocate a backward movement as they did the first half of 1902.

In closing I wish to notice a little argument of E. R. Root's which is based on a fallacy. It is found on page 375. The argument is based on the mistaken idea that during *winter* "the temperature of their (bees) bodies is about the same as ours or any warm-blooded animal." I think, now that I call his attention to the matter, Mr. Root will remember that, in the experiments which I conducted several years ago, during two winters, with a self-registering thermometer, conclusive proof was given that, at all times when in winter quarters, when the bees were in a state of quietude so conducive to good wintering, and when no brood was being reared, the temperature inside the cluster was only from 63 to 65 degrees; while when in uneasiness, or when brood was being reared, the temperature of the center of the cluster went up to from 95 to 98 degrees, or to about the temperature of the human body. This shows the reason of the great consumption of stores where bees are uneasy and go to brood-rearing, in that they have to "burn" honey to raise the temperature of the cluster from 63 to 65, up to 95 to 98. And with this extra consumption of stores usually comes out of season brood-rearing, rapid wearing-out of vitality, bee diarrhea, spring dwindling or death, or both. It is a very rare thing that any brood is found in any of my colonies when first set from the cellar, but during the next three weeks the hive sare filled with brood to an extent never obtained by those which have become uneasy and brooded out of season. And as the bees which may survive from this out-of-season brooding are practically of no use it is far better that the bees keep quiet, with no brood till spring is fully open, and then go to brood-rearing with a will, using their stores and vitality in perfecting bees which, when coming on the stage of action, count from the start toward a prosperous season. Think the matter over, brethren. If I am at fault, don't follow me. If right, I shall have added my mite to the sum total of the knowledge gained thus far in our pursuit. And these winter months are just the time to do lots of hard thinking along apicultural lines.

Borodino, N. Y.

[Mr. Doolittle has one condition that most of us do not and can not have; and that is, absolute control of the temperature of his bee-cellar; for he says he has a variation of only half a degree, notwithstanding the *outside* temperature varied from away below zero to a warm atmosphere and green grass. Absolutely uniform temperature like this was impossible in our machine-shop cellar, which varied all the way from 38 up to 55 and even 60.

But Mr. Doolittle is laboring under a serious misapprehension if he supposes our cellared bees consumed 20 lbs. of honey per colony. The consumption of honey was between 5 and 8 lbs., notwithstanding the fact that heavy machinery was rumbling over them during the day. The bees did not have more than 10 or 12 lbs. per colony to start with; yet very many of them had half that amount of stores left, and came out in the spring in good condition.

If Mr. Doolittle were to have a variable temperature I am strongly of the opinion that he would *have* to have copious ventilation at night. When I suggested more ventilation for his cellar I was not aware that he was able to keep so exactly an ideal temperature — 45 Fahrenheit. It is not to be supposed that he would get any better results than he now does, if his consumption is only about 6 lbs., and the bees keep perfectly quiet.

Our bees in the machine-shop were perfectly quiet so long as they had ventilation at night, no matter if the temperature did not go up as high as 55 Fahr. They would lie in dormant clusters, thus contracting according to the temperature of the room.

The great mass of bee-keepers do not have conditions that are ideal; and I therefore think my advice to give plenty of ventilation, especially where the temperature is variable, would mean better wintering— much better — than if that same cellar were shut up tight. For example, the bees at our outyard cellar were shut up practically tight all winter, and yet they had dysentery, and wintered badly.

Then, too, it is important to give flights toward spring—one or two—with just such cellars.

I am not able to speak in regard to the conditions that exist in the case of Mr. Bingham and his cellar, and he will doubtless speak for himself.

With regard to the temperature of the earth, my own experiments about 20 years ago, of letting a thermometer down into various wells all over Medina, the thermometer being drawn up in a bucket of water, showed that the temperature of the water 10 or 15 feet below the surface of the ground was about 45. Assuming that the air from the surface would warm up the water to some extent, it was reasonable to conclude that a temperature of 42 Fahr. would be about the temperature that prevails in Medina soil.

Mr. Doolittle suggests that we shut our cellars up a week and note results. We did do that repeatedly last winter and the winter before; but with a rising temperature during the day, due, no doubt, to the warm steam heated room above, the bees would get uneasy.

Referring to my statement on page 375, I would say that I referred only to the conditions that exist in our cellar with its variable temperature.—ED.]

ALFALFA.

Full-grown Hay Better for Horses than the same Amount of Young Feed.

BY L. B. BELL.

I wish my mind were as free from fear of the "bogy" of early alfalfa-cutting as our Colorado friend Gill's seems to be from his comforting letter in Nov. 1st GLEANINGS. After reading his article I thought we had all "borrowed" considerable trouble over the matter, and it was with a light heart that I pitched into an old rancher here (a well-posted Yankee, growing alfalfa as a business). I managed to retreat in fairly good order, but with the impression on my mind that one of us had been misinformed on this subject, and I longed for a reserve force of experiment-station reports to fall back upon for reinforcements. His statements were in effect that nearly every experiment station in the alfalfa-growing region had reported that alfalfa contains the greatest amount of "protein" when only one-tenth in bloom. Now, one thing is certain with me—that this rule was pretty generally followed this year in this locality, with the result that I secured only one-fourth of a honey crop.

I wish this question could be settled conclusively. There is too much difference of opinion on the matter. I find the difference even among alfalfa-growers, and the arguments pro and con lead me to believe that the question can be settled, and settled in favor of the bee-men, especially in localities where the hay is used largely for feeding horses.

I know this much about the matter: You couldn't run fast enough to give a livery-stable man a load of alfalfa to feed horses for fast driving. Why? Because the quality varies so on account of the difference in the time of cutting that they have formed a prejudice against the hay, and will not feed it if they can get any thing else. Horses fed on alfalfa cut before the first seed begins to form are not fit for hard driving; and work horses fed on alfalfa a tenth in bloom are soft and washy, with no endurance or strength. It is entirely too laxative for horse feed.

These I know to be facts in which practical men will bear me out; so you can save them to put in your digest on this subject, which I hope you may see fit to prepare, or have prepared by some one competent to do so, as soon as we can get it settled on sufficiently solid ground, and know just what we are talking about. Some argue that horses will not eat all their hay when the alfalfa is over-ripe, as the stems are too tough and woody; but they have in a large measure jumped at a conclusion, and a wrong one. If I am not mistaken, a government ration of hay is 18 lbs. per day; but if the hay is cut before maturity, a horse will eat 30 lbs. or more, and still be hungry, because of the lack of nutrition in the hay; while a horse fed 25 or even 18 lbs. of mature hay will probably leave some of it, not because it's woody and tough, but because he has been sufficiently nourished; and a horseman who understands his business will not hesitate long on which one to take out for a long drive or hard long pull.

What Mr. Gill says in regard to the value of alfalfa cut in full bloom coincides with my experience and with that of most practical men who reason things out; but I suspect that that "fountain of wisdom," the experiment station, sometimes puts out opinions evolved by a process of experimenting so exhaustive that there has been no time nor strength left for thinking.

I have written to our experiment station to find out what they think about it; and I would suggest that the editor of GLEANINGS also write to each of the several stations in the alfalfa-growing region, and get such data as may have been issued, or any revision of opinion which they may make.

I doubt the wisdom of saying much of the bee-men's interests in the circular, as many men (I am sorry to say) are just selfish enough to look with distrust upon any advice coming from such source, and would rather lose something themselves than have any of their fellow-men get something off their land for nothing.

There would be several economic points to be considered, such as the extra amount of irrigating required to make up the weight in the crop: also the extra running over the ground with mower, rake, etc.

Camp Verde, Ariz.

[In this issue, in the editorial department, I have already made liberal extracts from the Kansas Experiment Station regarding this matter of the time when to cut alfalfa. I am now of the opinion that friend Gill did not know, when he wrote in GLEANINGS for Nov. 1, that there was such a strong tendency on the part of the ranchers to cut alfalfa early. But the tide may turn the other way when the buyers of early-cut hay discover that it is too laxative for horses, and that it is not suitable for horse feed as compared with other hays, or alfalfa cut older. Our columns are open to the full and free discussion of this matter; and let us know in just what predicament or position the bee-keepers in the alfalfa region are already placed or will be placed in the future.—ED.]

FORMING SECTION-BOX NUCLEI.

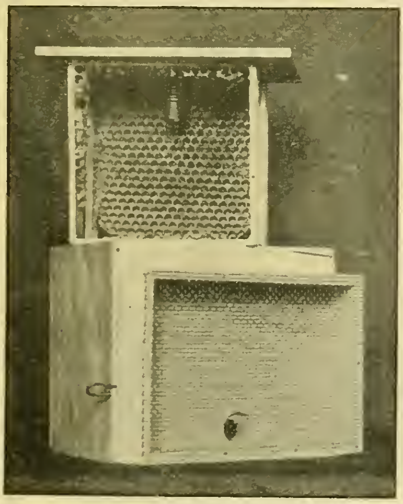
How Provision may be Made for Mating from Forty to Fifty Queens by the Bees of One Strong Colony, as Practiced by "Swarthmore."

BY SWARTHMORE.

It does not require more than a teacupful of bees to surround a young queen with the necessary environments for maternity-flight—the only question being how best to harness such a small force in order to get the best results with as little time and labor as possible.

We must bear in mind that it can not be expected that very small nuclei will maintain themselves without assistance; therefore the hives should be of such construction as to be quite easily handled, either singly or in numbers—wholesale mating being the idea—in lots of twelve or twenty-five at a time.

Details of the fertilizing-box I am now using, and the one that has been so successful in the hands of Mr. Fr. Greiner and others the past season (see GLEANINGS for Sept. 1. 1902, pages 726 to 727), is as follows: A simple box for holding two 4¼x4¼ section-box frames, having a half-inch flight-hole on one side, as shown, covered with the screen in the photograph.

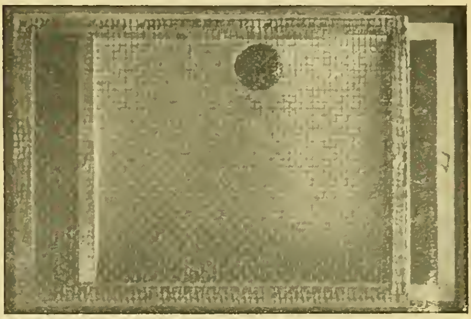


SWARTHMORE MATING-BOX FOR SETTING OUT.

The frames are attached to the lid or roof board (which may or may not be divided) by means of staples driven part way into the wood, and then bent at right angles over the frame, which holds the same securely, yet permits ready removal by a simple twisting motion. Standard 1⅞x4¼x4¼ sections, split in the middle, are used for frames. When the frames are dropped into place in the box, the top opening will be entirely closed, and the little frames will have a bee-space from the bottom and sides of the little hive.

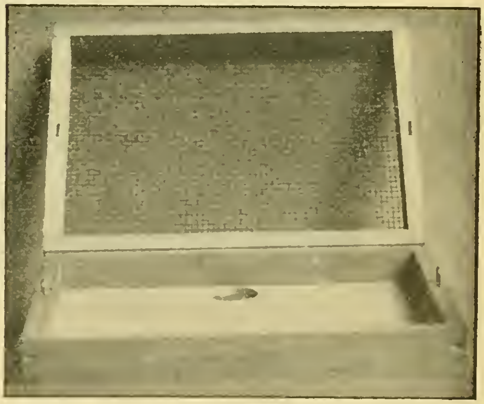
A ¾-inch-hole, coming directly between the two frames, is made in each lid for the purpose of inserting queen-cells or feeders. Foundation is fixed into these small frames, and eight of them are then fitted into a Langstroth frame, and several such are hung in large hives to be drawn out and supplied with honey; after which they are removed as wanted, and fixed two frames in each box, as shown in the photograph above.

It is always better to have some brood in the combs; but brood is not imperative when making up isolated nuclei. Of course there is some chance of failure without brood, but of such small consequence that the loss is hardly noticeable in the end. However, stocks of brood, honey, and pollen may be held always in reserve by keeping a nucleus colony of from three to five frames constantly upon small combs fitted into Langstroth frames.



SWARTHMORE CONFINING-SCREEN FOR FORMING NUCLEI.

Supply twelve mating-boxes at a time, each with two nicely drawn combs well supplied with honey; then run into each box a teacupful of bees in the following manner:



Twelve confining-screens (shown attached to a box in the first photograph) of peculiar construction are to be at hand.

Two rims are made, of half-inch strips, 4¼x5½. One rim is covered with wire cloth, while the other is covered with a thin board. A ¾-inch hole is cut in the center of the thin boards, from side to side, but close to the lower rail of the rim. Small staples driven into the board-covered half, one at each end, and then forced into the screen-covered half, serve to hold the parts together. If for any reason it is necessary to cast the bees from the confining-screen, as in strengthening nuclei on their stands, simply separate the parts, jar out the bees, and replace. Staples serve very well for holding the screens in place, although some prefer wire nails driven in diagonally at either end. If for any reason it is desired to confine bees in the screens, a Swarthmore shell will just fit the escape-hole. These screens are very useful for transporting bees for strengthening purposes.

Nearly every bee-keeper nowadays starts his cells by taking up a few bees in a screen-covered or ventilated hive-body; and, after the cups are well under way, said bees are returned to the hive from which they were borrowed, the cups being given to full colonies to be completed.

Instead of returning such bees to the loaning colony they may be used in forming small nuclei by the use of the screens just explained; and at the height of the season the loss will not be felt by any strong colony.

SWARTHMORE FORMING NUCLEI WITH HIS CONFINING-SCREENS.

At one end of your screen-covered hive-body bore a ¾-inch hole and provide a cork which can be quickly drawn and replaced in said hole at will. Remove the started cups at about 10 o'clock in the forenoon, and by noon (or before) the bees will be wild to escape from their confinement in the screen-covered hive-body.

Place the escape-hole toward the light, and darken all other openings. Now place a confining-screen above the escape-hole; and as you draw the cork, slide the screen downward and over the hole, in alignment with the hole, into the hive-body. The bees will immediately pour out of the hive-body into the confining-screen. It's like drawing honey from the extractor. Let them fill the screen full, then slide it up, and at once cork the hole. Place the thumb over the hole in the confining-screen (keeping the wire toward the light), and at once clap the screenful on to the point of a nucleus-box, as shown in the first photograph; attach it there by the use of staples, as plainly shown. Now bring on another screen and another, until all the bees have been drawn from the hive-body. If any are left they can be returned to the hive from which they were borrowed, in the usual way.

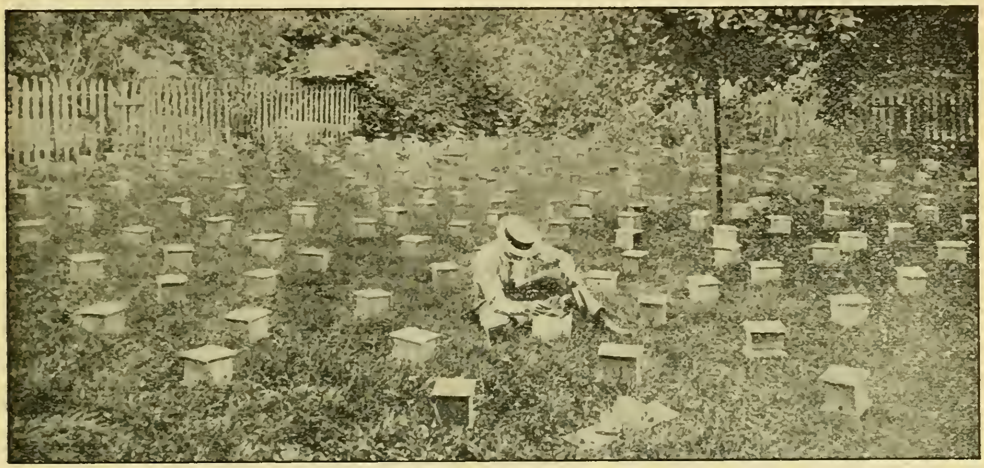
After all the boxes have been supplied, drop a just-hatched virgin into each box, or supply a hatching cell through the hole in the lid, and at evening set out the boxes and remove the confining-screens.

In the photograph (see next page), the mating-boxes are set out singly, but they may be grouped in twos and fours as illustrated in GLEANINGS by Mr. Greiner. Each is provided with a little stand and covered with a board. Feeding is done by means of vials covered with muslin or screw-tops, or candy forced into a cage inverted on top of each hive.

Remove all queens as soon as mated, and in three days drop in another just-hatched virgin or a ripe cell.

If testing is desired, cover the flight-hole with a bit of zinc to prevent the queen from leaving the box after fertilization.

When any of the nuclei show signs of weakness, take the queen and brush the bees into the next box three days later, and on the next round restock the empty boxes. It is just as easy to run bees into screens in this manner as to return them to the hive; therefore any losses from any cause may be quickly and cheaply made up. With a little experience, however, any bee-keeper can run his boxes for months without loss, and at a minimum of expense.



THREE HUNDRED MATING-BOXES SET OUT.

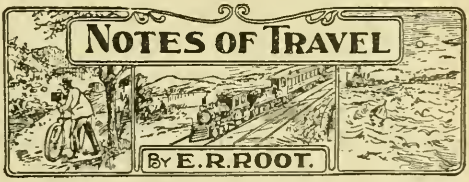
If a handhold-like slot is cut directly over the escape-hole, on the inside of the hive-body, covered with a strip of drone-excluding zinc, any undesirable drones will be sifted out as the bees pass from the hive-body into the confining-screens.

[Complaint has been made that the other plan, offered by Swarthmore some time ago, of mating queens in the small single-comb boxes, was not a success. Although he says he made it work yet it was evident that it would be a failure in the hands of the average bee-keeper. The plan that he now offers is an improvement in that the mating boxes are larger, having two combs.

Mr. Henry Alley, the veteran queen-breeder, has for years used small nuclei of this kind, but having three or more frames. Whether more than two are necessary for the average bee-keeper I can not say; but certain it is, Friedmann Greiner, one whom I regard as exceedingly careful and conservative in his statements, says he has made the plan above outlined work to his entire satisfaction, and if he has I am sure other bee-keepers equally expert can; and no one should undertake to rear queens in a wholesale way, either for himself or for the market, unless he is fairly expert.

The problem that Swarthmore has been working at, is to make a handful of bees, as it were, do the same work in mating of queens that a larger nucleus with more bees and standard-size frames will do, and I believe he has in a measure succeeded, notwithstanding that there are many who say that the thing can't be done. If, as Mr. Greiner suggests, one can form, from one strong colony, fifty mating nuclei instead of five, and if from that fifty a large part of the queens can be fertilized, one can hardly afford to stand on the outside and say "the thing can't be done." But I would by no means advise one to try it on a large scale at first. Let him try a dozen boxes properly equipped, as did Mr. Greiner, and if these work try more. Swarthmore appears from the photo to have something like one hundred, or did have last summer in successful operation.

It should, perhaps, be stated that these small nuclei *might* (I don't know) not give satisfactory results after the honey or swarming season. Robbers might make short work of them.—Ed.]



NOTES OF TRAVEL

BY E.R.ROOT.

WATSON'S RANCH IN NEBRASKA; SOME OTHER INTERESTING FEATURES ABOUT THAT GREAT FARM; A POSSIBLE BEE-RANGE OF 5000 ACRES OF ALFALFA; SOME OF WATSON'S SAYINGS.

In our last issue I was telling something about harvesting the alfalfa on this great ranch. I have since learned that the crop of alfalfa put up this year on the ranch was 10,000 tons. Just think of it! Ten tons of hay in this eastern country to the farm is called big; but when we multiply that by *one thousand* we can form some idea of the immensity of the crop. As if that were not enough, more land is to be seeded, for alfalfa is a paying crop when meat and pork are so high; and, by the by, one of Mr. Watson's hobbies is raising hogs; and just now, as he explained, there is good money in them.

Another one of his hobbies was shipping cattle from Mexico to his ranch during winter, and then turning them loose on that fine aftermath of alfalfa, after the haying season is over, to fatten. The alfalfa during winter furnishes good pasture for a

THE RANCH CARRIAGE—ADMIRING A FINE STAND OF CORN. MR. WATSON AT THE RIGHT.

THE LARGEST STOCK AND DAIRY BARN IN THE WORLD (WATSON'S RANCH).

good part of the winter; and with the help of those immense stacks of alfalfa right out in the field he could make those cattle sleek and fat, ready for delivery in the Chicago markets. The plan had not fully materialized yet; but why shouldn't it work, and he and the other fellow make good money? he asked, and why shouldn't they?

Now having looked over the alfalfa-field let us go up to the ranch itself, or, rather, to the center of it, where is located the largest dairy barn in the world, probably. It is 317 feet long by 96 feet wide, having 34-foot posts. It has an immense silo in connection, and through the center of it run tracks for carrying the feed for the cattle without any pitching or handling from stall to stall. It will accommodate 350 cows without tying. There is another shed at right angles to it, 568 by 48 feet. This will hold 600 tons of hay; and cattle, how many it will stable I do not know. In connection with the ranch there is a corn-crib that holds more than 10,000 bushels of corn; a grain-bin 240 by 16. On the ranch are 57 dwelling-houses in which live the workmen and their families. In one part of the ranch up on the hills where the land has hitherto been perfectly worthless for any purpose whatever, Mr. Watson has thrifty-growing orchards. The wise heads in the vicinity said it would be no use to set out trees on those barren wastes — "wouldn't nothing grow there." But, "allee samee," he has shown that fruit can be grown there successfully. His 5000 cherry, 3000 plum, and 7000 peach trees all testify to his remarkable mastery over the climate and the soil. What he has done in showing the possibilities in this semi-arid country without irrigation has been worth millions of dollars to Nebraska. The great Union Pacific Railroad recognizes his work, and seems disposed to offer him every facility for the carrying-out of his plans.

A little the other side of the dairy barn was an immense creamery, and Watson's butter is known all over that part of the country. An expert has this in charge; and what Mr. Watson does not know about the business, this man does.

In connection with the other departments is an immense poultry establishment. Mr. Watson has called in an expert poultry-grower, who had, I believe, at that time, 1000 chickens, all of them growing thriftily, and without disease. It is the intention of Mr. Watson, I believe, to have ultimately 10,000 chickens on the ranch at a time. They are housed and taken care of in a modern way in small flocks in a place.

The bee business of the ranch was on a comparatively small scale, but Mr. Watson proposed with the advice and help of Mr. Wilson to take it up extensively. "Just think," he said, "of five thousand acres of alfalfa all in bloom at once, and bees enough to get the honey, and the bee-range all your own! Don't you think I could get some honey?" As he said this his eyes fairly gleamed with enthusiasm. Said he, "Mr. Wilson and I will make some money, eh?" And that reminds me that Mr. Watson goes into partnership with all the heads of his departments giving them in addition to their salary a share in the crops, and, as he said, "What is *my* business is theirs also. I don't have to nag 'em to make 'em hustle, for they hustle for themselves, and that's the way I do business with my good men."

I believe this is the largest ranch in the world, under one man. There are other ranches controlled by stock companies that are much larger. Indeed, I believe there is one alfalfa-ranch within about 40 miles of Denver — well, it seemed as if I was about an hour in riding through it, and that too in a Pullman car at full speed. But here is a genius at Kearney, Neb., who has been able thus far to spread himself over several lines of industry, and who, through his great faith in himself and in the soil, has made every one of these lines pan out well. The land in the vicinity had come up in value since Mr. Watson has demonstrated what it can do; and he is as anxious that every one else in his locality should do as well as he; for he takes pride in exploiting new schemes and showing the world how it can make a living off the soil.

Perhaps I can give the reason of some of Mr. Watson's success by giving a few of his sayings; for as I talked with him he uttered great truths every now and then; and after I got on the train I jotted down as many as I could remember. Here are a few of them:

"I shall be dead a long time, and I believe in making the most of opportunities while I live."

"There are some men who never move fast enough to keep out of their own dust."

This sentiment bubbled over while we were driving with the wind through a cloud of dust, the dust keeping pace with us. As he hurried up the horses he went on to tell that a man to suit him was one who could keep out of his own dust, who could make things move and get good results.

As we drove past some ground that had not been plowed up, covered with weeds (and there are weeds that grow on that great ranch simply because there are not men enough there to take care of them), Mr. Watson said: "I believe in the usefulness of even weeds, because they make us work." Then he went on to explain that a certain kind of weeds would loosen the soil when plowed under, and make an excellent fertilizer. He did not believe the great Creator put all these so-called nuisances on earth without some purpose. It was the business of every one of us, he thought, to find out what that purpose is, and utilize it by turning the weeds into money.

While we were talking about whether the ranchmen would in time cut alfalfa just as it is in bloom, Mr. Watson gave it as his opinion that we need never worry about that. Alfalfa grows so thriftily that we can not keep up with it. Nine times out of ten it will be cut too late rather than too early, no matter what is the belief of the ranchman himself.

A few more sayings are worthy of record: "I believe in the gospel of enthusiasm. I believe in saving steps by having all the paths on the ranch in a beeline."

By standing at the ranch-house we could easily see the paths or roads running out from a central point like the spokes of a great wheel.

After commending one of his men for some good work he did, he said, "I believe in expressing my appreciation of my men when they do good work, when," said he, with a twinkle in his eye, "it will not spoil them. There are some men whom I can not possibly praise without making them good for nothing; and there are others to whom honest praise is a wonderful stimulant to do better."

While Mr. Watson may be somewhat visionary and utopian in his views of things, and while it is true his plans and business ventures have not always been successful, it is a great treat to be in his presence, to feel the electricity of his energy and enthusiasm.

Needing some more data for this write-up than what I possessed I wrote to Mr. Wilson making further inquiry. After furnishing me the desired information he gave me a pen picture of Mr. Watson and the ranch that is worth reproducing and here it is:

"The farm is remarkable because it is solving some of the greatest problems of agriculture of the great West, in that portion where the rainfall is light and drouths are severe and frequent. In his schemes and plans he is bold and confident; his optimism is unbounded. It is surprising how he camly reviews discouragements — not dwelling long on them, for his fertile mind demands action.

"Probably no other man in the West is such a master of the science of soil culture and tillage as Mr. Watson. As for preparing a cherry orchard, he just put it to alfalfa, and after two years this was disked until in a fine condition of loam and alfalfa, and then prepared for the young trees. It is remarkable how soil of this preparation will hold moisture and afford plant food. Probably one of the most valuable things he has discovered with alfalfa is that by seeding it thinly and sowing bluegrass between, cows can feed on it with perfect safety, with no danger from bloat."

A. I. ROOT OFF FOR CUBA.

A. I. Root left for Cuba the day after Christmas, going by way of Florida, where he stopped for two days. Here he fell in with Jacob Alpaugh, a fine mechanic, and one of Canada's best bee-keepers. Mr. Alpaugh was also on his way to Cuba, and he and A. I. R. go on together. That shipment of bees, from last reports, was piling in the honey, and Mr. Root had at attack of old-fashioned bee-fever. He said he felt as if he must go down and "help the boys extract." We shall hear more from him.

Heads of Grain from different fields

PEAR-JUICE FOR WINTER FEED.

Is it safe to leave pear juice with the pomace outdoors so the bees can go to it as they please, now, or will it hurt them?

My neighbor has bushels of pears going to waste. The juice is much sweeter than maple sap. C. S. INGALS.

Morenci, Mich., Nov. 2.

[I certainly would not let the bees have such juice if I could avoid it. If they have gathered much of it and put it in their hives, you will be apt to have severe winter losses before spring, or at least bad cases of dysentery, with colonies greatly weakened when the bees are able to fly at the return of warm weather. If you are sure you have got pear-juice in your combs, better extract it, or, better still, give the bees combs of good stores. The pear-juice combs will come in good play next spring for stimulative feeding.—ED.]

WINTER HIVES, AND HOW PACKED.

1. Do the chaff hives have a movable bottom-board?

2. Is there any packing at the bottom or only on the sides?

3. Do you think these hives are warm enough for a temperature which sometimes for weeks gets to be 60 below zero? At present my hives are packed in an outer box something like the Cowan double-walled hive with 4 inches of packing at the bottom, 7 inches on sides, and 2 supers with a burlap over frames, all filled solid to the top. I hope this will be warm enough, but it is too expensive for a large apiary. My intention is to increase to about 50 colonies. At present I have 7.

Can you tell me whether it would be good to make Dadant hives square in order to hold about 13 frames instead of 10 as now?

Dorchester, Wis., Nov. 8. WM. UECK.

[1. No.

2. As a rule, the regular chaff hive is packed all around on the sides, ends, bottom, and top, with packing material of some sort, but not necessarily chaff. Bottom packing is not really essential.

3. In your locality I would not advise the ordinary chaff hive, because it would not be warm enough. Hives packed as you describe would do very well, perhaps; but a better way would be a good dry warm cellar, with facilities for ventilating the same at night during the winter. I would not advise making the Dadant hive square. It would be too big. This would be a case of "getting too much of a good thing."—ED.]

A SUGGESTION FOR A BEE-FEEDER; HOW TO PUT STARTERS IN HOME-MADE BROOD-FRAMES.

I have never seen a feeder that was just what I thought it ought to be. I should like to have one that fastens on to the back end of the hive, and feeding through an auger-hole. Then it would not be in the way in examining bees, and could remain in place all the time. When it needs refilling, raise a tin cover and pour the syrup through a wire cloth into the pan.

I will give my way of putting starters in brood-frames, as I never saw it in print. Take a strip of wood ½ inch thick by 1 inch wide, and long enough to go easily inside of the frame under the top-bar. Now place one edge of this strip to the center of the bottom side of the top-bar, and drive two tacks in the top side of the strip at the edge of the top-bar so that there will be no more trouble in getting the strip to the right place. Now melt some wax, and make some strong soapsuds to wet thoroughly the edge of the strip before placing in position in the frame. Turn the frame bottom upward, and let the bottom-bar lie across the arm, holding the end next to you a little higher than the other. After placing the starter in the frame, pour the wax over the end next to you, and let it run to the other end. With a little practice one can put starters in that answer every requirement.

Cave City, Ky., Nov. 6. A. P. YOUNG.

[Bee-feeders such as you describe have been made, but they have never become very popular. Besides necessitating the mutilation of the hive, they require an expensive feeder. A cheap simple feeder, one that can be used at the entrance or inside of the hive, is better than a complicated trap on the outside. Your method of fastening foundation will do very well when the bottom side of the top-bar is not grooved.—ED.]

BEE PARALYSIS.

I have sent you a few dead bees along with this letter, to see if you can give me any information as to the cause of their death. This colony has a two-year-old queen, and was my best one this spring, until the trouble began, six weeks ago. They die faster than the bees can carry them off, as there are many on the bottom-board. I have examined the comb, and find no sign of foul brood. They have the appearance of being swollen. I have 30 hives and this is the only one that is troubled.

Rockland, Mass., Nov. 11. F. AMES.

[The sample of dead bees you send, and the symptoms you describe, point to bee paralysis. In the Northern States the disease rarely if ever does any great damage. I think I would advise, however, removing the queen and substituting another. If the disease reappears again next season on those combs, and in those same hives, burn the combs and scorch out the inside of the hive. Such proceedure is hardly ever necessary, and is resorted to only in extreme cases.—Ed.]

FOUL BROOD IN MICHIGAN.

Is there any cure for foul brood, or any law in regard to people keeping infected bees? There are two apiaries near me that have foul brood. B. M. WING.

Sheridan, Mich., Nov. 11.

[Most certainly there is a cure—a law, and an inspector to see that such law is carried into effect. I commend your case to Foul-brood Inspector W. Z. Hutchinson, Flint, Mich.—ED.]

ITALIAN BEES IN PLACE OF ROBBER-TRAPS.

There is much being written just now on robber-traps. Much valuable reading-space is taken up illustrating them, etc. The best robber-trap I have ever used or seen is a good colony of Italian bees. There is more profit in one colony of Italians than in all the bee-traps ever invented. If a colony becomes queenless, and is being robbed, place a sack over the hive and pour water on the sack. The water will run down on to the entrance, which makes the robbers soon give up the undertaking.

C. E. WOODWARD.

Matanzas, Cuba, Oct. 10.

[Much of what you say is true, and I would have pure Italians if for no other reason. But Italian bees, if good workers, will rob fearfully if the bee-keeper is in any way careless. The best preventive of robbing is skill and extreme care, coupled with a knowledge of the general robbing propensities of bees.—ED.]

Do queens stop laying eggs at this time of the year or sooner? I opened one of my hives to-day, and couldn't see an egg or larva, all the brood being capped. Let me know if this happens each year, or whether it shows that the hive has no queen.

E. H. KILIAN.

Mascoutah, Ill., Oct. 14.

[Queens almost invariably stop laying, in normal colonies, in the fall of the year. The fact that you saw no eggs or larvæ would not be an indication that the queen was absent; but, on the contrary, that the conditions were normal.—ED.]

Do you know if any one has ever tried feeding sugar-cane juice to bees in order to have them complete sections? Do you think it would be successful after the honey-flow has ceased? G. W. WEINGART.

Picayune, Miss., Oct. 13.

[Cane-sugar juice can be fed to bees, and they would make a sort of syrup honey of it; but under no circumstances would we think of using it to fill out sections, unless the customer who bought such sections was told plainly that it was cane-sugar honey. The general experience is, when the public is told that a section is filled with sugar syrup it will have none of it.—ED.]

OUR HOMES,

BY A. I. ROOT.

So I prophesied as he commanded me, and the breath came into them, and they lived, and stood up upon their feet, an exceeding great army.—EZE 37 : 10.

A few days ago as I was passing along the streets of Medina I met an old neighbor who has been quite active all his life in temperance work, and of late years especially in the Anti-saloon League work. He has had quite a spell of sickness, and was just able to be out in the sunshine for a little airing. Thinking to cheer him up I began to tell him of the temperance victories at the present time here in Ohio. He is of a peculiar temperament, and given to odd and startling speeches. His reply to my remarks, as nearly as I can remember, was something like this:

"Why, Mr. Root, the people have got *so* tired of being dead so long that they can not stand it a minute longer, and so they are all waking up here and over there, and all around," sweeping with his hand the whole face of the horizon. Of course, I had to smile at the thought that dead folks sometimes get "tired" of being dead; and as I pondered, walking along, I smiled out loud, and since then I have several times had a good big laugh at the thought of dead folks getting tired of being dead. Now, please do not think me irreverent, dear friends. While I laughed at Bro. Shaw's oddity I thanked God again and again that some of the dead folks we have all round us *are* at length tired of being dead, and that Mr. Shaw's remarks are true. The whole wide world is waking up. In our Homes for Sept. 15 I quoted from Bro. Reed's sermon where he said there were dead people all through the world walking about — people who are spiritually dead — people to whom the Holy Spirit has ceased to speak; those who have no care or anxiety for the welfare of humanity, especially *youthful* humanity.

Now, if some of you still insist that the world is just as dead as it has been all along, and is going to remain dead — in fact, *prefers* to remain dead — I want to give you some facts. On page 951, Nov. 15, I copied from one of the Cleveland papers in regard to the movement on foot to retire the old police officers, for they absolutely *would not* enforce the laws against saloons. If you have read the daily papers you probably know that from that time forward a strict enforcement of law commenced in Cleveland. One of the Toledo papers, in commenting on the matter, said Cleveland now-a-days was as dry on Sunday as a "covered bridge." The saloonists were surprised and astonished; 47 of them were arrested and fined, Nov. 30. But even this did not seem to arouse them to the fact that the police, for at least once in the world, "meant business." The next Sunday a lot more were arrested. One of the liquor papers, in wailing about the way in which old laws that everybody considered obsolete were enforced, "gave themselves away" by declaring that they lost the sale of 2000 barrels of beer in just one Sunday. Some of you say I mean 200 instead of 2000. Nothing of the sort. It was 2000 *barrels*. Now, mind you, I am talking about *barrels* and not *kegs*. The brewers had been in the habit of disposing of about 2000 barrels of beer every Sunday in Cleveland; and the arrest for intoxication on God's holy day dropped off at once. Relative to this I make the following extract from an address by Hon. Frank Arter, of Cleveland, entitled "The Saloon and the Christian Sabbath."

> With a recent closing of the saloons on the Sabbath, there has been a decrease of over seventy-five per cent in the arrests made for drunkenness on that day, and with no murders, no brawls, and with a possibility of decent people of the city walking the streets without fear of insult. On the first Sunday the saloons were closed, there was less beer by 2000 barrels sold.

On page 950, Nov. 15, I told you what five kegs of beer did among a gang of Italian railroad men. Well, the beer made here in Ohio is exactly as bad as that made in Northern Michigan. Some of you may say, "Oh! well, this may not last long. The police of Cleveland have taken on a spasm of law enforcement; and when you get down to it you will find, Bro. Root, it is all for political effect in some way or other. You see if it holds out."

God bless you, my dear friend, of *course* it will hold out if you and I *make* it hold out. The great Father above did not place us on this green earth to go about as living corpses; but he meant us to be *live men*, and to insist on the enforcement of our laws.

You may say these "spasms" of temperance work are confined mostly to Ohio; that the rest of the United States and even the rest of the world is going on in about the same old way. Well, if this were true I should thank God that the people of Ohio are waking up, and, in the language of our text, "standing upon their feet an exceeding great army;" for it has been many times said that Ohio is not only central in a geographical sense but that it is getting to be central in an educational and moral sense. Thank God *again*, if this is true. I am proud to think that I was born in Ohio, and at a time when I could help just a little in the temperance work. Coming to life is contagious. Michigan is getting the fever: so is New York; and Indiana, and Kentucky to some extent (in spite of her celebrated whisky); and Virginia and Pennsylvania are both beginning to turn over in bed and give signs of restlessness if nothing more. May God be praised, if it be indeed true, that they too are getting "tired" of being dead so long.

But just now I want to tell you the good news that is coming from Ohio. In our last issue I told you of our victory in Collinwood. In that place 36 saloons are now closed up. Collinwood is one of the eastern suburbs of Cleveland. Lakewood, a suburb on the western side of the city, has also come out with a tremendous victory, and everybody is rejoicing. Is it going to damage business? The Cleveland *Plain Dealer* of Dec. 7 says, "Real estate is active in consequence." It further says:

> Messrs. Matthews & Gilbert are making a sale of their lots, selling them at an average of fifty a week for $240 each. The saloons in beautiful Lakewood, Cleveland's smokeless section, will be abandoned Dec. 22d and this fact alone establishes Lakewood as the only suburb except East Cleveland that will be devoted strictly to residence purposes.

While I write, other suburban towns around Cleveland, Bedford, Nottingham, Glenville, and others, are also commencing vigorous fights ; and with God's help they will beat the enemies of righteousness. I will tell you why. The saloon-keepers are not ready to wind up business. They are making preparations to move (or have moved) just over the line, where they won't be "worried." Of course, the *people* object to more saloons when they are all satisfied they have too many already; and the saloon-keepers already on the ground *also* object. Just here let me say that some of the other temperance organizations have complained that the Anti-saloon League method is like driving a mad dog into another county. If this is true, dear friends, it *is* bad to drive a mad dog or a saloon-keeper over on to your neighbor's premises. But, bless your heart, the adjoining county must "get on a move" in a like manner. They must come to *life*, stand up on their feet, and chase these mad dogs *clear off the face of the earth.* Let us get them on the run, and worry them until, in sheer desperation, they go down into the sea as did the swine in that story in holy writ.

At the Anti-saloon Congress Supt. Baker told us of 91 towns in Ohio that had gone dry under the Beal law. Yesterday's daily said it is now 95; and while I write I think there must be a full hundred. Do you say the blind pigs and speakeasies are selling just as much liquor as ever in the dry towns? Why, my dear brother, you have not yet got over being dead. At Columbiana, O., Wm. Ryan was fined $100 and costs just because he sold a temperance drink—at least he claimed it was—that he called "malt mead," containing less than two per cent of alcohol. Now, they did not even succeed in proving that the malt mead was beyond the limit of the law, and was nothing more than a temperance drink; but they convicted him *solely* on the fact that he had taken out a federal license, thereby *acknowledging* that he was engaged in selling intoxicating drinks; and that was the third penalty of the kind imposed under that law in Columbiana County. In the past week two places here in Medina that claimed they sold only "soft drinks" have been fined nearly $400 each just because the records show that they had in like manner taken out a United States license for selling intoxicating drinks. Truly the way of the transgressor of temperance laws is getting to be full of pitfalls. In getting good men into office, Supt. Baker said at the congress, "Every man who connives at or favors the saloon must go—go down and out. We care not what political party has boosted him in, we propose to boost him out. If a man is so wet that he must wear gum boots, we propose to present him a canoe to row out." Rev. C. L. Work, of Granville, O., said, "I find that 73 men who used to sit in legislative halls have now through the League been relegated to rear seats at home, where they will stay until they show fruit meet for repentance."

We are frequently told that the League is all right for *small* towns but that we can do nothing with the cities. Xenia has a population of 9000; but their 33 saloons went out like a snuffed candle. Cleveland has 2000 saloons now ; but the suburban towns all around it are getting in such splendid fighting trim that it looks just now as if the entire city might soon be in war. May God grant that this war shall commence soon. Let me digress a little.

One summer evening, just a few weeks ago, I took a trolley-line out of Cleveland westward. It is one of our new lines, and for a distance of something like ten miles brand-new saloons had been thickly located on both sides of that electric line. My impression at that time was, the business was a little overdone; but those fellows seemed to think that the "march of progress" demanded a beer-shop about every ten rods or less on every new electric railway. The further they got out into the country the more scattering were these saloons ; but some enterprising fellow had started one at almost every point where the cars stop. I was wondering at the time whether it was possible that our Ohio people were going to let this thing continue. May God be praised that now these same Ohio people are coming to life, as Bro. Shaw had it. and they are coming to their senses. At Barnesville, O., they had a speakeasy that made them so much trouble people armed themselves and went at it with axes. Of course, they had the law on their side. Mayor White says he gave the order to the marshal as follows:

> Go in the name of the law and with its power, and, with hatchet and club, break down, bring out, and destroy the blind tiger, and let neither man, beast, nor devil stand in your way until your work is done thoroughly and completely.

Since then I have learned the saloon-keepers buried a lot of cans of dynamite where the marshal would be likely to strike them with his pick-ax. Here are the particulars:

> BARNESVILLE, O., Dec. 8—Marshal Charles Fogle and two deputies armed with axes started this morning to make the ninth raid on a "blind tiger" operated in the Herd building. They barely escaped exploding twenty-four railroad torpedoes loaded with dynamite, and so arranged that it would be easy for the officers to strike them with their axes.
>
> The officers entered the building and found several men drinking in front of a barricade built of cross-ties. They noticed a strip of pasteboard across the barricade, and, tearing it off, found the concealed torpedoes. Had they struck the barricade with their axes their death would have followed. The inmates escaped, but much liquor was confiscated.

I feel that it would be an injustice to our colored friends to omit mention of the address of Prof. E. B. Curry, a colored man who is president of the Curry College, at Urbana, Ohio. He said:

> "There is not a negro in the United States manufacturing beer. It is all made by some other fellow. (Applause.) I protest against the negro being invited to help pay the cost of a traffic from which he never has nor can receive the least benefit."(Applause.)
>
> "The 140,000 negroes of Ohio say we appreciate the enormous cost of our emancipation; and now that the people are waging a still greater conflict against an evil still greater, we wish to have a hand in it. (Applause) We abhor it, and ask the privilege to fight this den of immorality, now seeking to-day a grave for our prosperity."
>
> "I ask you to tip your hat to the patriotism of the unbleached American. We are whitening within."

Before closing I wish to say something in regard to the army canteen. At one of the conventions of the Liquor League recently, in view of the tremendous headway the Anti-saloon League was making it was suggested that they, the whisky people, would have to get out a lot of literature, and do "missionary work" as Christian people do. They proposed to ransack the world to find leading divines, if possible, who will defend the saloon. They would make extracts from their writings, and spread these circulars broadcast. They also propose to hunt up army generals who favor the saloons. They are trying to gain their point by manipulating statistics, these statistics being in defense of the saloon and canteen, which by some hook or crook are to be got into the papers. They propose to buy the space if necessary; but they want it put in the reading-matter. Here is a sample of the newspaper statements that are sent out. Of course, we have some generals in the army who are dead men—that is, dead to the influences of the Holy Spirit. I clip the following from a recent daily; and please notice, friends, it is from *General Sanger* — do not forget the name — who is working for the reinstatement of the army canteen:

FAVORS THE CANTEEN.

> To remedy these conditions the post exchange, at which light beer was sold, was exercising a wholesome influence, and General Sanger believes the exchange should be again made a possibility by removing all restrictions on the sale of beer and light wines.

Let me now give you some of his reasons for favoring the canteen; and, by the way, it is an excellent sample of the style of reasoning that comes from these army generals. The mothers of our land have, as you well know, protested with all their might against having their boys taught intemperate habits by the canteen. Here is what General Sanger says in regard to it:

> To the fear. so often expressed by the opponents of the canteen system, that the sale of beer would initiate, or induce habits of intemperance, General Sanger shows from a careful census of the 342 companies of troops in the Philippine Islands that in 60 companies every enlisted man used vinous, malt, or spirituous liquors at date of enlistment: in 130 companies, between 90 and 100 per cent; in 58 companies, between 80 and 90 per cent; in 25 companies, between 70 and 80 per cent; in 20 companies, between 60 and 70 per cent. Unfortunately quite a number of men habitually drink to excess; and as this number will probably increase if the men are obliged. as now, to resort to native liquors in order to satisfy what to many of them is a perfectly natural craving, the result will be most deplorable.

I know figures are sometimes dry reading; but it behooves us who love righteousness (and pay taxes) to note carefully these figures. In 60 companies, every enlisted man was a drinking man at the time of his enlistment. How is that for soldiers to defend our rights? Is it true that our national army is composed of a gang, the most of whom could not get a job on any of our leading railways, or, say, in any of our leading manufacturing establishments? God forbid. The daily that gave place to the above, said in an editorial on another page that it was a pity if the officers of the army of the *United States* could not have a law enforced to banish saloons, say for five miles from every army post. This indicates, without question, that the management of the daily paper did not sympathize with the report from General Sanger that they were induced to publish for some reason or other.

Another point, in our navy intoxicating liquors have been ruled out for several years past. How is it that we can not have total abstainers in the *army* as well as in the navy? If the above figures are true, is it not high time that we had a regular housecleaning, and that our drunken and drinking privates, and officers as well, were gotten out and some clean men with clear brains put in their stead? General Sanger suggests that the appetite for strong drink "is a perfectly natural craving." Several young boys have gone from Medina County — yes, they have enlisted and gone to the Philippines to fight our battles — boys who were clean and pure, and had no such natural craving. I think the greater part of them came back proof against this terribly dangerous ordeal of army life. It behooves every father and mother in the land to contradict these reports that the brewers are circulating through the papers and their circulars. This General Sanger and all the rest of his gang need to be spotted; and we each and all should write to our Representatives in Congress, and protest against this terrible state of affairs that the whisky men *themselves* are bringing to light. God is with us, and we shall prevail—that is, is we are thoroughly *tired* of being "dead men," and are ready, as in the language of our text, to "stand up upon our feet, an exceeding great army."

SOME KIND WORDS FROM HOWARD H. RUSSELL, SUPERINTENDENT OF THE NATIONAL ANTI-SALOON LEAGUE.

Years ago, when the Anti-saloon League was just started here in Ohio, at one of our meetings at Lakeside I asked Mr. Russell to go with us for an hour or two out on the lake to a very pretty bathing-spot. He answered me something like this:

"Mr. Root, I should like to go with you, but I positively can not spare the time."

"Why, Bro. Russell, don't you ever take a vacation, for an hour or two, in July?"

I think I shall remember his reply as long as I live. It was something like this: "Mr. Root, when the Anti-saloon League has succeeded in getting a law passed that can be enforced to break up the saloon business, then I am ready to take a vacation; and I am afraid I can never take one conscientiously until that time comes."

Well, during the past season we have for the first time in the history of the Anti-saloon League reached the point he mentioned. We have the Beal law, and it is being enforced, and the saloons are giving way before it in considerable numbers; therefore Bro. Russell has evidently decided he can conscientiously take a vacation, and I have his permission to put in print a letter he wrote me in September.

My dear Friend:—I desire to write to you once more to thank you again for your general interest in the work in which I am engaged, but more particularly to let you know how much good you are constantly doing me and my family through your department in GLEANINGS in which you give your attention to the interests of "Our Homes." I have scarcely missed reading a single copy of that part of the paper for many months past; and after reading them I generally send them home, and they are read in the family. I think I have been moved to dictate this letter just now because of the special interest aroused in my mind by your work in rebuilding the walls of the country church that had gone down. I sent the copy of the paper home, marked on the margin, "How A. I. R. spends his vacation."

How much more good could be done during the vacation season by Christian people, without really taxing themselves to any great extent, if they would only open their eyes and "see things to do," to use an expression Mr. Moody once used in a conversation with me. I spent my summer vacation upon a little farm in the town of Grafton, N. H. I found there was no church within six miles, and that a good many of the neighbors were not attending church anywhere. My dear old father, 80 years of age, is a *Rector emeritus* of an Episcopal church in Iowa. He and my dear mother spent the summer with us He consented to read the Episcopal service every Sunday, and I assisted him so far as preaching was concerned The children decorated the dining-room with roses, wild flowers, and branches of the evergreens, and we changed it into a beautiful church-room every Sunday morning, and it was filled as full as it would hold with our neighbors, who seemed delighted with the privilege of attending such a service, and expressed regret when the services were concluded, at the end of our vacation. One old lady said that she had not attended a service before for three years, and expressed her hearty appreciation of the privilege.

I did not expect to write at such length when I began my letter. You will be interested to know that I am giving considerable time just now to fostering the work here in New York State, which is yet in its beginnings, but which promises to be a strong and forceful organization in the future. I am looking after the work in other new States by correspondence, and expect to be able to visit several of them personally the coming year. I hear good tidings continually about the work in Ohio. I think you and my other comrades in The A. I. Root Co. have a right to be justly thankful that you have done so much to help forward the work in Ohio. I believe it is one of your best investments. Please tell Ernest or John that I am appreciating and reading the copies of GLEANINGS they are sending me regularly, and give all the members of the firm and family my assurances of continued affection and esteem. Yours very heartily,

New York, Sept. 11. HOWARD H. RUSSELL.

Our Advertisers.

We have recently gone over our records of advertising for the past season, and find that our advertisements placed in the poultry journals have given us as usual very good returns; this confirms our opinion that poultry-men find bee-keeping pays well with poultry. Will not bee-keepers too learn that poultry added to bees is a paying investment? Look over the columns of GLEANINGS and send to each poultry-supply man for his book. They are all full of valuable information. Do it now, for this is the season to make poultry pay. When you write, do us the favor to mention GLEANINGS IN BEE CULTURE.

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Among our advertisers our friends may have noticed lately this big institution. I have been watching them for some time—in fact, I have been watching them for years as they have built up gradually from a small beginning. I believe they are one of the first business houses in the world to undertake to bear *all* the responsibility. In one of the little slips they send out with their advertising they say something like this: "After you send us an order you need not worry or lie awake nights for fear something will go wrong. We do all the work of worrying and lying awake nights for you. We guarantee the goods shall be as represented, and in every way satisfactory; that the freight charges shall be reasonable, and that nothing shall be broken or damaged on the way. If every thing is not just right you may send the goods back, and we will pay all expenses both ways. You shall not be out of pocket a cent."

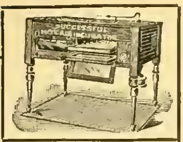
When I was out in the woods at work I found I wanted a log-chain and a crowbar. I found exactly the articles I wanted, described in Montgomery Ward & Co.'s catalog; and to make it plain I tore out a part of the leaf, and sent it by a neighbor to Traverse City, telling him I was willing to pay 25 cents more than the price printed on the leaf; but if they wanted more than that he was not to buy. He went to three hardware stores. All three said they had no goods at any such price. They said the log-chain would break, and the crowbar would double up; the stuff was no good. But all three of the hardware dealers seemed to be mad when he showed them a leaf from that catalog. Now, I had been for some time thinking that I would send for a whole lot of little traps, to that firm, to experiment with, to see how they managed to have everybody satisfied. A good many of the tools I wanted cost only two or three cents. Well, the chain and crowbar were just beautiful, at least for the money. The log-chain used by the farmers I had hired had no swivel, and so they broke the chain several times just because there was a kink in the links. The one from M. W. & Co. is 14 feet long, ⅜ iron, and had a big stout swivel in the middle so it could not kink. It was the prettiest log-chain I ever saw, hooks and all. It cost only $1.60. The crowbar cost 70 cents, and it is a splendid tool every way. They advertised what was called the "little handy bar," for 28 cents. Everybody who has seen this has wanted it—even the women folks; and every thing I ordered was of the very best and latest make.

Mrs. Root was made happy with a tin cup and little basin of aluminum, costing only 14 cents each. If you have never used aluminum in your household utensils, there is a happy surprise awaiting you. You can scald milk or any thing else in aluminum, and it will never burn on or stick. It never rusts, and it is almost as light as a feather. Just one more illustration:

I ordered two caps, telling them I woud keep one and return the other by mail. I did this, putting on 9 cents postage. But they returned the 9 cents promptly, saying it was their business to pay charges both ways when any thing did not suit. In fact, they *both* suited, but I did not really want two. Under the circumstances I thought it was no more than fair that I should pay the 9 cents. They seemed to think otherwise, however. Now, the point of all this long talk is this:

This firm has been built up to its immense proportions by doing business on Christian principles. They do all they agree to; and where there is any question they do a little more, thus varifying what I have often said through all my life—that the best advertisement that any man can ever have is to treat his customers, each and all, in a Christianlike way. Let the spirit of Christ Jesus be seen through all your business. Though shalt love thy neighbor as thyself.

Some of you may suggest right here that the hardware men could not afford to sell goods as cheaply as Montgomery Ward & Co., they can not *buy* them as low, etc. I reply that they can *certainly* buy the goods of M. W. & Co., and they can add enough to pay freight and a reasonable profit besides. No one would object to paying them a fair margin instead of sending to Chicago. The freight on all our stuff, including eavespouts, conductors, etc., to spout our barn in good shape, was only 74 cents.



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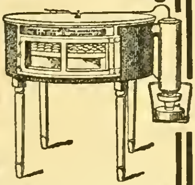

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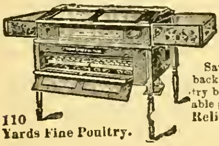

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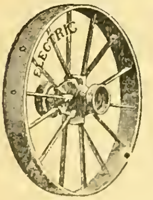

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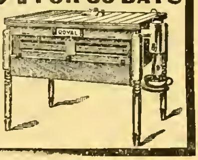

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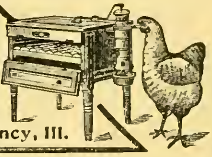

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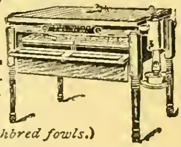

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My 1903 catalogue. Elegant in illustration, full of practical hints, describes 56 breeds of prize winners. Low prices for birds and eggs. Book postpaid, 10 cents. Calendar for 1903 on cover.

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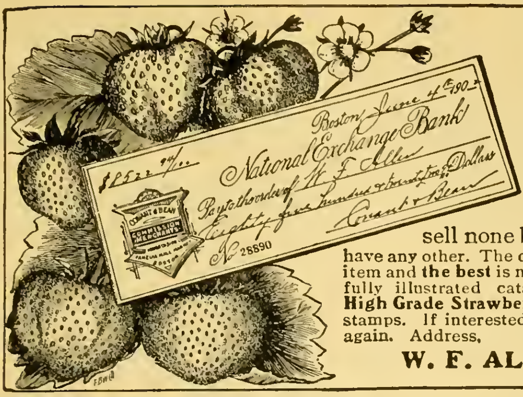
POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. *Sample Free.* 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. **Catalogue** of poultry books free. *Poultry Advocate*, Syracuse, N.Y.

BEST SMALL FRUITS.

Standard and improved varieties of Raspberries, Blackberries, Gooseberries, Currants, Grapes, Strawberries, etc. Every plant grown and guaranteed by me. Ship only clean, vigorous, well rooted, fresh dug plants that give results. Write for late catalog.

Allen L. Wood, Wholesale Grower, Rochester N.Y.



THIS CHECK
and several smaller ones

I received the past season for **Strawberries** (not plants). That was because I have only **the best.** It pays to get **the best.** I sell none but **the best.** I can't afford to have any other. The cost of plants is comparatively a small item and **the best** is none too good. I will send my beautifully illustrated catalogue with lithographed covers of **High Grade Strawberry Plants** by return mail for two 2c stamps. If interested send to-day. This will not appear again. Address,

W. F. ALLEN, Salisbury, Md.

SEEDS VEGETABLE AND FLOWER

In fact everything in the **Nursery** and **Florist** line. We send by mail postpaid **Seeds, Plants, Roses, Bulbs, Small Trees,** Etc., safe arrival and satisfaction guaranteed, larger by express or freight. Send for our elegant 168 page free catalogue and see what values we give for your money. 49 years. 44 greenhouse, 1,000 acres.

THE STORRS & HARRISON CO., Box 170 Painesville, Ohio.

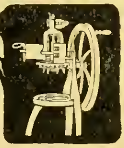
MANN'S LATEST BONE CUTTER

BRINGS MORE EGGS

Makes healthier fowls. All latest improvements.

SENT ON TEN DAYS' FREE TRIAL.

No money until you're satisfied that it cuts easier and faster than any other. Isn't that better than paying cash in advance for a machine that you never saw? Catalogue free. **F. W. MANN CO., Box 37, Milford, Mass.**



$47.50 OUR GENUINE SPLIT HICKORY SPECIAL

TOP BUGGY

is sold direct from the makers at $47.50 and

30 DAYS' FREE TRIAL

allowed before acceptance. *This is YOUR chance.* Just drop postal for catalogue.

OHIO CARRIAGE MFG. CO.,
Station 27, - - Cincinnati, Ohio.

Actual Results

of the advantages of spraying are shown in above picture. The two piles of apples came from the same number of trees in the same orchard row. The big pile from sprayed trees. Pictures taken from actual photographs.

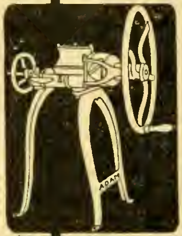
The Best Spraying Pumps

bucket, knapsack, barrel, hand and power, are made by the undersigned, inventors and sale owners of many new valuable spraying fixtures and features. Write for free catalogue and booklet on insects, plant and fruit diseases.

THE DEMING CO., SALEM, O.

ALWAYS READY.

The ADAM Green Bone CUTTER



is always clean and ready for work. Impossible to choke it up. Cleans itself. **The Only Bone Cutter with all ball bearings.** Works quickly and easily. No choking or injuring of fowls by slivers or sharp pieces. Cuts a clean light shave that is easily digested by smallest chicks. Send for Catalog No. 59 Contains much valuable information on the cut bone question. You will be pleased with it. Sent free upon request.

W. J. ADAM, JOLIET, ILLS.

THE HUMPHREY

GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

HUMPHREY & SONS,
Box 51, Joliet, Illinois.

See Stearns Latest Model Bone Cutter.

Ball bearings, automatic feed. Money back if not satisfactory. Send for free catalog and special trial offer.

E. C. STEARNS & CO., Box 107 SYRACUSE, N. Y.

Revised Price List of Garden Seeds for January, 1903.

PLEASE NOTICE that any or all seeds mentioned below are sold in five-cent packages, postpaid, by mail. For ten papers ordered at one time, 40 cents; 100 papers, $3.50. Of course, scarce and high-priced seed will necessitate making a very small amount of seed in a package; but by far the greater part of them contain a full half ounce of good fresh seeds. By comparing these packages with those you get of most of the seedsmen you will notice the liberal amounts we furnish for only 5 cts. It is true, we do not give presents or cash prizes; but we believe the most intelligent people of the present day would prefer to have their money's worth of what they ordered rather than compete for a prize. The five-cent packages are sent postpaid; but the price of all other seeds does not include postage; therefore, when you order seed by the ounce or pound, allow postage thus: 9 cts. per lb.; 5 cts. per ½ lb., or 1 ct. per oz. Peas and beans by the pint and quart must also have 8 cts. per pint or 15 cts. per quart; for corn, add 12 cts. per quart for postage. Postage to Canada is double the above rates. One-fourth ounce, pound, or peck will be sold at ounce, pound, or peck rates unless otherwise specified.

ASPARAGUS.

Asparagus, Palmetto. Oz 5c; lb. 40c.

BUSH BEANS.

Burpee's Bush Lima. Pt. 15c: qt. 30c; ½ pk. $1.00;
Wood's Improved Bush Lima. Pt. 20c; qt. 35c; pk. $2.00. An improvemedt on Henderson's, and larger.
Davis Wax Bean. Pt., 8c; qt., 15c; 4 qts., 55c; pk. $1.00; bushel, $3.75.
Dwarf German Wax, black seeded. ½ pt. 8c; pt. 12c; qt. 20c. Perhaps the best wax bean, and very early.
Prize-winner Extra Early Shell Bean. ½ pt. 8c; pt. 12c; qt. 20c; ½ pk. 65c; peck, $1.25.

This is not only the earliest shell bean we have ever come across, but it is a tremendous yielder, and the best quality of any white bean we know of It is so exceedingly early that in the season of 1900 we grew two crops on the same ground, and the second crop was from beans that ripened from the first crop

White Kidney, Large. Pt. 8c; qt. 15c; pk. $1.00; bu., $3.50.
York State Marrow. The standard field bean. Qt. 10c; pk. 75c; bushel, $2.75.
Banner Field Beans. Qt. 10c; pk. 70c; bushel, $2.75.

POLE BEANS.

Extra-Early Lima Beans, ½ pt. 8c; qt. 25c; pk. $1.75.
King of the Garden Lima. ½ pt. 8c; qt. 25c; pk. $1.75.

All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.

BEETS.

Eclipse. Oz. 5c; lb. 40c; 5 lbs. $1.75.
Long Red Mangel Oz. 5c; lb. 20c; 5 lbs. 90c; 10 lbs. $1.60; 20 lbs. or more, 15c per lb.
Golden Tankard Mangel. Oz. 5c; lb. 20c; 5 lbs. 90c; 10 lbs. $1.60; 20 lbs. or over, 15c per lb.

STANDARD SUGAR BEETS.

Lane's Imperial Sugar. Oz. 5c; lb. 20c; 5 lbs. 75c; 10 lbs. or more, 14c per lb.
French White Sugar Red-top. Same price as Lane.

CABBAGE.

Select, Very Early Jersey Wakefield. Oz. 20c; lb. $2.50.
Henderson's Early Summer. Oz. 10c; lb. $1.25.
Fottler's Brunswick. Oz. 10c; lb. $1.25.
Burpee's Sure-head. Oz. 10c; lb. $1.25.
Excelsior Flat Dutch. Oz. 10c; lb. $1.25.
Perfection Drumhead Savoy. Oz. 10c; lb. $1.25.
Large Red Drumhead. Oz. 10c; lb. $1.25.

CARROTS.

Early French Forcing. Oz. 5c; lb. 60c.
Orange Danvers, Half Long. Oz. 5c; lb. 50c; 5 lbs. $2.25.

CAULIFLOWER.

March's Improved Early Snowball. (Mattituck Erfurt.) ⅛ oz. 30c; ¼ oz. 50c; oz. $1.75.

CELERY.

Henderson's White Plume. Oz. 10c; lb. $1.00.
Golden Self-blanching Celery. Oz. 15c; lb. $1.75.
New Rose. Oz. 10c; lb. 75c.
Giant Paschal. Oz. 10c; lb. 75c.
Dwarf Golden Heart. Oz. 10c; lb. $1.00.

CORN (for table use).

Corn we sell at 5c per half-pint package; but at this price purchasers must pay postage, which is 3c for each half-pint. If wanted in larger quantities the price (where no price is given) will be, pt. 7c; qt. 10c; pk. 75c· bu. $2.90.

Kendel's Early Giant Sweet Corn.
Ford's Early Sweet.
Late Mammoth Sugar.
Stowell's Evergreen
Country Gentleman, or Improved Shoepeg.
Rice Pop Corn. Extra fine.
Sweet Corn for fodder. Pk. 40c; bu. $1.50.

CORN SALAD.

Oz. 5c; lb. 40c.

CRESS.

Extra Curled, or Pepper Grass. Oz. 5c; lb. 40c.
Water Cress, *true.* Oz. 25; lb. $2.50.

CUCUMBER.

Early Frame. Oz. 15c; lb. $2.00.
Improved Early White Spine, or **Arlington.** Oz. 15c; lb. $2.00.
Green Prolific, or **Boston Pickle.** Oz. 15c; lb. $3.00.

LETTUCE.

Grand Rapids Lettuce. Oz. 5c; lb. 50c; 5 lbs. $2.00.
Big Boston. Oz. 5c; lb. 50c.
Henderson's New York. Oz. 5c; lb. 50c.

MELONS, MUSK.

Casaba, or **Persian Muskmelon.** Oz. 8c; lb. 75c.
Banana. Oz. 8c; lb. 75c.
Extra Early Citron. Oz. 8c; lb. 75c.
Emerald Gem. Oz. 8c; lb. 75c.
Miller's Cream, or **Osage.** Oz. 8c; lb. 75c.
Paul Rose Muskmelon. Oz , 8c; 1 lb., $1.00. New; fine.
Rocky Ford Canteloupe Muskmelon. The same that so many people enjoyed at the Omaha exposition. oz. 10c; 1 lb. $1.00.

MELONS, WATER.

Phinney's Early. Oz. 5c; lb. 30c.
Landreth's Boss. Oz. 5c; lb. 30c.
Sweetheart. Oz. 5c; lb. 30c.

ONIONS.

A leaflet on "Growing Onions to Bunch up" will be mailed on application.

Yellow Globe Danvers. Oz. 8c; lb. 75c; 5 lbs. $3.25.
Large Red Wethersfield. Oz. 8c; lb. 75c; 5 lbs. $3.25.
Prizetaker. Oz. 15c; lb. $1.25.
White Victoria. Oz. 20c; lb. $2.50.
American (Extra Early) Pearl. Oz. 25c; ½ lb. $1.75; lb. $3.25.
Extra Early Red. Oz. 8c; ¼ lb. 30c; lb. $1.00.
Bermuda (true Teneriffe). Oz. 25c; lb. $2.00.
Giant Gibraltar Onion. Oz. 20c; lb. $2.50; new and fine; still larger than Prizetaker.

PARSNIP.

Improved Guernsey. Oz. 5c; lb. 25c; 10 lbs. $2.00.

PARSLEY.

Fine Curled or Double. Oz. 5c; lb. 35c.

PEAS.

Peas of all kinds are very scarce. If you think our prices high, look over your seed catalogs and see what some of the rest are charging for them.

Alaska. ½ pt. 7c; qt. 20c; pk. $1.35; bu. $5.00.
American Wonder. Qt. 25c; pk $1.60; bu. $6.00.
Premium Gem. Qt., 25c; pk. $1.60; bu. $6.00.
Stratagem. ½ pt. 8c; qt. 20c; pk. $1.25; bu. $4.50.
Champion of England. Pt. 10c; qt. 20c; pk. $1.25; bu. $4.50.
Canadian Field. Pk. 60c; bu. $2.00.

Peas by mail will be at same rate as beans for postage.

PEPPERS.

Sweet Spanish. ¼ oz. 5c; oz. 15c.
Bullnose. ¼ oz. 5c; oz. 12c.
Cayenne. ¼ oz. 5c; oz. 15c.

PUMPKIN

Early Sugar. Oz. 5c; lb. 35c. Specially for pies
Field Pumpkin. Oz. 5c; lb. 15c.

RADISHES.

Early Scarlet Globe. Oz. 5c; lb. 40c.
Wood's Early Frame. Oz. 5c; lb. 40c.
Beckert's Chartier. Oz. 5c; lb. 40c.
Chinese Rose Winter. Oz. 5c: lb. 50c.

RHUBARB.

Myatt's Victoria. Oz. 10c; lb. $1.00.

SALSIFY, OR OYSTER PLANT.

New Mammoth. Oz. 10c; lb. $1.00.

SPINACH.

Bloomsdale Extra Curled. Oz. 5c; lb. 20c; 5 lbs. 75c.

SQUASH.

Giant Summer Crookneck. Oz. 10c; lb. 75c.
Hubbard. Oz. 5c; lb. 50c; 5 lbs. $3.50; 10 lbs. $6.50.

TOMATO.

Golden Queen. Pkt. 5c; oz. 15c; lb. $2.00.
Ignotum Tomato. ½ oz. 8c; oz. 15c; lb. $2.00.
Livingston's Beauty. Oz. 12c; lb. $1.75.
Earliest-in-the-world Tomato. ⅛ oz. 5c; ¼ oz. 10c; ½ oz. 15c; oz. 25c.
Fordhook First. Oz. 20c; lb. $2.75.
Dwarf Champion. Oz. 15c; lb. $2.00.
Buckeye State. Oz. 15c; lb. $2.00.
Livingston's New Stone. Oz. 10c; lb. $1.25.
Trophy Tomato. Oz. 10c; lb. 75c.
Pear shaped Tomatoes. Oz. 20c; lb. $2.50.

TURNIP.

Yellow Aberdeen. Oz. 5c; lb. 30c.
White Egg. Oz. 5c; lb. 30c.
Breadstone. Oz. 10c; lb. $1.00.
Purple-top White-globe. Oz. 5c; lb. 30c; 5 lbs. $1.25.

Potatoes, Clover-seed, etc.

TABLE OF PRICES.

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	Half Peck.	Peck.	Half Bushel.	Bushel.	Barrel, 11 pks.
Red Bliss Triumph......	$ 18	$ 40	$ 30	$ 40	$ 75	$1.25	$3.00
Six Weeks..............	18	40	30	40	5	1.25	3.00
Early Ohio.............	18	40	30	40	75	1.25	3.00
Early Michigan.........	18	40	30	40	75	1.25	3.00
Early Trumbull.........	18	40	30	40	75	1.25	3.00
Bovee..................	18	40	30	40	75	1.25	3.00
New Queen..............	18	40	30	40	75	1.25	3.00
Freeman	18	40	30	40	75	1.25	3.00
Lee's Favorite.........	18	40	30	40	75	1.25	3.00
Twentieth Century......	15	35	20	35	60	1.00	2.50
State of Maine.........	15	35	20	35	60	1.00	2.50
Maule's Commercial....	15	35	20	35	60	1.00	2.50
Carman No. 3	15	35	20	35	60	1.00	2.50
Sir Walter Raleigh......	15	35	20	35	60	1.00	2.50
King of Michigan......	25	50	35	50	85	1.50	3.50
California Russet.......	15	35	20	35	60	1.00	2.50
New Craig..............	15	35	20	35	60	1.00	2.50

Seconds, while we have them, will be half price (for description of seconds see page 828), but at the present writing, Jan. 1, we are sold out of *seconds* of Six Weeks, Early Ohio, Bovee, Carman No. 3, Sir Walter, Russet, and Freeman

A barrel can be made up of as many varieties as you choose, and they will be at barrel prices if you have a whole barrel or more. We will keep them safely in our potato-cellars until next April if you prefer. Potatoes that are wanted in the South we will ship later than the date given above; and we will guarantee protection from frost by giving them extra care in packing in paper and fine sawdust. But as this extra packing incurs extra labor and risk, we shall have to ask a little more, which additional charge will depend on where they are to go, and in what season of the year you want them. Let me know *what* you want, and *when* you want to plant them, and we will do the best we can in way of prices.

POTATOES AND GARDEN SEEDS TO BE GIVEN AWAY.

Everybody who sends $1.00 for GLEANINGS (asking for no other premium), may have 25 cents' worth of potatoes, seeds, etc., providing he mentions it at the time he sends in the money; and every subscriber who sends us $1.00 for a new subscriber so that GLEANINGS may go into some neighborhood or family where it has not been before, may have 50 cents' worth of potatoes, seeds, etc.

You can have your premium potatoes sent by mail, express, or freight; but if you want them by mail, you must send the money for postage. For 25 cents you can have 5 lbs. of potatoes; but the postage and packing amounts to ten cents for each pound; and I do not believe you want to pay 50 cents in postage for 25 cents' worth of potatoes. As a rule, potatoes should go only by freight; 25 cents' worth is hardly enough for a freight shipment; so by far the better way would be to have them shipped by freight with other goods. The express charges on only 25 cents' worth are very often as much as the postage, and sometimes more.

PRICES ON CLOVER SEED AT THIS DATE.

Although the market is not very well settled as yet for 1903, as near as we can make out the prices will be about as follows. But let it be understood there are liable to be fluctuations, and we can not be responsible unless for immediate orders.

Alsike clover, bu., $10; ½ bu., $5.25; peck, $2 75; 1 lb., 20c, or by mail, 30c.

Medium clover, bu., $7.00; ½ bu., $3.75; peck, $2.00; 1 lb., 18c, or 28c by mail.

White Dutch clover, bu., $12.00; ½ bu., $6.25; pk., $3.25; 1 lb., 25c; 1 lb. by mail, 35c.

Peavine, or Mammoth Red clover, same as medium.

Alfalfa, same as medium

Crimson, or scarlet clover, bu., $4.50; ½ bu., 2 40; peck, $1 25; 1 lb., 10c, by mail 20c; 3 lbs., by mail, 50c.

Sweet clover, 100 lbs., 10c per lb.; 10 lbs. at 12c; 1 lb., 15c; by mail, 25c per lb.

The Best of Everything

THE NORTH-WESTERN LINE

THE through train service of the Chicago & North-Western Railway from Chicago to Omaha, Denver and the Pacific Coast on the west, the Black Hills and Dakotas to the northwest and to Milwaukee, Madison, St. Paul, Minneapolis and Duluth on the north, is as nearly perfect as modern and skillful management can make it.

The Overland Limited, a magnificent electric-lighted train, less than three days Chicago to San Francisco, daily.

The Colorado Special, only two nights to Denver from the Atlantic seaboard. Solid train Chicago to Denver.

The North-Western Limited, an electric lighted daily train between Chicago, St. Paul and Minneapolis.

H. R. McCullough, 3d Vice-President.
W. B. Kniskern, Passenger Traffic Manager.
CHICAGO, ILL.

Queens == Queens == 1903.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands Carniolans, and Albinos are bred for business. Tested queens, $1 50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed.

The Jennie Atchley Co., Box 18, Beeville, Tex.

FENCE! STRONGEST MADE. Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

DOUBLE YOUR SALARY

Don't spend spare time thinking what you might be if your salary were doubled! *Doing*, not thinking, will make your wish a reality. Our free booklet, "Are Your Hands Tied?" tells you what to do and how to do it. Thousands have already doubled or largely increased their salaries by following our plan. Under our guidance you can do the same. Act today! I. C. S. Textbooks make it easy for those already at work to

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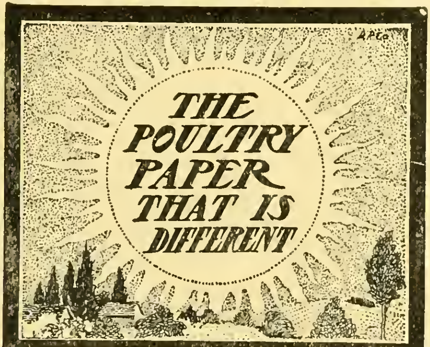
Mechanical, Steam, Electrical, Civil, Mining, Telephone, and Telegraph Engineering; Shop and Foundry Practice; Mechanical Drawing; Architecture; Plumbing; Sheet-Metal Pattern Drafting; Chemistry; Ornamental Design; Lettering; Bookkeeping; Stenography; English Branches; Teaching; Locomotive Running; Electrotherapeutics; German; Spanish; French.

Circular free. State subject that interests you.

**INTERNATIONAL CORRESPONDENCE SCHOOLS,
Box 799, SCRANTON, PA.**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Send us name and full address on a postal and see how good it is. Free if you mention this paper.

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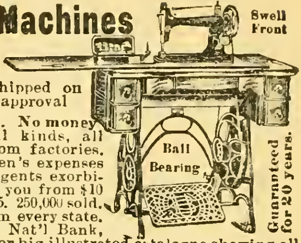
NOTHING AS GOOD ADVERTISED ANYWHERE.

Sewing Machines $7.25 to $26.50



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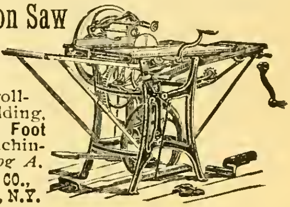
CASH BUYER'S UNION, Dept. K 345 Chicago.

Union Combination Saw



For Ripping, Cross-cutting, Rabbeting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **Foot and Hand Power** machinery. *Send for catalog A.*

**SENECA FALLS MFG. CO.,
4 Water St., Seneca Fs., N.Y.**

HONEY QUEENS!

**Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.**

Laws' queens are doing business in every State in the Union and in many foreign countries.

The demand for Laws' queens has doubled any previous season's sales.

Laws' queens and bees are putting up a large share of the honey now sold.

Laws' stock is being sold for breeders all over the world. Why? Because it is the best to be had.

Remember! That I have a larger stock than ever; that I can send you a queen any month in the year and guarantee safe delivery; that I have many fine breeders on hand. Price, $3.00 each. Tested, each, $1.25; five for $6.00. Prices reduced after March 15. Send for circular.

W. H. Laws, Beeville, Texas.

Two Virginia Farms for Sale,

at 50 per cent of their actual value if sold within 60 days. Farm No. 1, 400 acres, 60 acres James River lowgrounds worth $60 per acre, $3600 340 acres uplands worth $10 per acre, $3100; buildings at lowest estimate worth $3000; $3000 cash $2000 on time at 6 per cent interest, takes this property worth $10,000 Farm No. 2, 400 acres watered by two fine mountain streams, on which are 100 acres of fertile bottoms, 100 acres uplands in cultivation and pasturage. Balance is virgin forest which will cut 200,000 feet of first-class lumber; good dwelling and some outbuildings. $3500 will buy this farm—$2500 cash, balance to suit the purchaser. The land on these two farms is fertile, free from stones, and every acre tillable, after clearing.

B. F. Averill, Howardsville, Va.

CRUSHED OYSTER SHELLS. 100 lbs., 49c; 200 lbs., 95c; Mica Crystal Grit, 100 lbs., 57c; 200 lbs., $1.07, or 100 lbs. each, $1. Poultry need both. Order now. Catalog free. WISE & CO., Butler, Ohio.

POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts)

Inland Poultry Journal, Indianapolis, Indiana.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

GET ACQUAINTED

with the Bee-keepers' Review. You can do it now at very little cost, and you will be surprised at the amount of valuable information and helpful ideas that are packed within its pages. For $1.00 you will get all of the issues for 1902 (except the January issue, the supply of which is now exhausted, but some other excellent number will be sent in its place) and the Review for all of next year, thus giving you the issues of two years for only $1.00. Add $1.00 more to the order (making $2.00 in all) and your order will be booked for a queen of the Superior Stock to be sent next spring.

W. Z. HUTCHINSON, = = FLINT, MICHIGAN.

CRAM'S Standard American Railroad-system Atlas and Shipper's Guide!!

The only atlas with railroad systems in colors. It embraces all the good points of other Atlases, and contains many additional features of its own. Send for sample map and information.

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Comb and Extracted

HONEY

in carlots or less. If in the market, state quantity wanted, and we will name you "lowest price." Samples of Extracted furnished on request. If you have any Comb or Extracted to ship, correspond with us.

Established 26 Years.

S. T. Fish & Co., Chicago, Illinois.

189 South Water Street.

Nursery Stock of All Kinds!

Complete line of TREES, VINES and PLANTS; hardy and true to name. Write for prices before placing orders.

E. A. Boal Co., Nurserymen, Hinchman, Michigan.

$1.00

Sample Free

DO IT QUICK

Modern Farmer & Busy Bee, 50c.
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Gleanings in Bee Culture, $1.00.
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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

SPECIAL NOTICE
Special Notices
By Our Business Manager.

CATALOG FOR 1903.

We are pleased to announce that we are a little ahead of former years in getting our catalog out on time. We have already begun mailing the new edition for this year. We are mailing to southern territory first, and will get around to the entire list as soon as possible. If you can not wait till your copy arrives in its turn, we shall be pleased to mail you one on request sent to us on a postal.

NO. 25 JARS IN STOCK AGAIN.

We are pleased to be able to announce that we are again supplied with No. 25 glass jars which have become so popular for putting up extracted honey for retail trade. They hold an even pound of honey. While we can supply them in crate at 50 cts. per gross less than in barrels, yet we have had so many complaints of breakage in shipments going long distances in crates, we can not recommend that method of shipping except for short distances. We can sell the new "Tip Top" jars cheaper than the No. 25, and many prefer them. Either supplied promptly to those interested.

BEESWAX WANTED.

The market for beeswax remains steady with a moderate supply. We are shipping so much foundation to dealers on next season's trade that we are using a much larger quantity early in the season than we have in former years ; consequently our surplus is exhausted, and we are using supplies as fast as they arrive. We shall be pleased to hear from those having wax for sale. We are paying at present for average wax, delivered here, 28 cents cash, 30 in trade, and from one to two cents extra for choice quality. Send on your shipments as soon as ready ; and be sure to mark them, so we may know whom they come from. Write us at the same time, and send shipping-receipt and a notice of the weight shipped.

SECOND-HAND FOUNDATION-MILLS.

We have on hand and offer for sale the following second-hand foundation-mills. Any one desiring a sample of the work of any one of these machines, or further particulars, we shall be pleased to accommodate on request.

No. 013, 2x6, hex. cell, extra-thin super. Price, $8.00.
No. 014, 2x6, hex. cell, extra-thin super. Price, $8.00.
No. 037, 2x6, hex. cell, ex thin super, good. Price, $10.
No. 2132, 2x6, hex. cell, thin super. Price, $10.
No. 2227, 2x6, hex. cell, thin super. Price, $10.
No. 2275, 2½x6, hex. cell, ex. thin super. Price, $10.
No. 035, 2x10, round cell, medium old-style frame, in good condition. Price, $12
No. 038, 2x10, round cell, med. to light, in good condition Price, $14.
No. 050, 2x10, round cell, medium. Price, $12.
No. 044, 2x10 Pelham, nearly new. Price, $6
No. 034, 2¼x12½, round cell, very old style, in fair condition. Price, $10.
No. 043, 2½x14, round, medium to heavy, good condition. Price, $14.
No. 051, 2x10, round cell, medium brood. Price $10.

Special Notices by A. I. Root.

GINSENG AND ITS CULTIVATION, HARVESTING, MARKETING, MARKET VALUE, ETC.

The above is the title of a new book just published by the O. Judd Co. It contains 144 pages, is full of beautiful illustrations, and it is, without question, a very valuable book for those who are growing or intend to grow ginseng I have looked it over very carefully, especially that part of it devoted to the medicinal properties of the plant, and I am sorry to say it has no medicinal value, or nearly none, outside of China; and their ideas in regard to its value are very likely mostly superstition. It is true, there are a few people in the United States who think it has medicinal value, and a medicine is already in the market made from ginseng. It seems to me exceedingly strange our American people do not at least *imagine*, with the Chinese, that ginseng has some wonderful virtue. I have all my life been in sympathy with all horticultural operations unless, indeed, it has been the cultivation of tobacco; and I still believe in growing even that to kill bugs, but *not* to kill our boys. I confess I have read over the ginseng book with great interest; and I have been tempted again and again to have a ginseng-garden in place of the one little patch we have across the way. I do not think it will ever harm anybody in the way tobacco does; and I do not know that it does any *harm* to the Chinese unless it is to furnish them a god to worship. I should not wish to go into the business of making idols of brass or gold, or of wood or stone; however, I believe ginseng has some medicinal properties. May be it is not a valuable medicine for every one, but I think it is good for me, or at least it was when a boy. I used to carry it in my pocket to chew whenever I felt symptoms of a chronic dysentery that has followed me nearly all my life; and for many years it was certainly a good medicine for me, or at least I imagined it was good, and this *may* amount to the same thing. This book has many photos of beautiful ginseng-gardens. The same kind of lath covering that they use for pineapples and other tropical fruits in Florida is what you want for ginseng. In fact, a covered ginseng-bed looks exactly like a pineapple-bed.

This book gives a very fair estimate of the profits — that is, at present prices of the root. It has none of the spread-eagle figures that go away up into the millions. Perhaps you have all seen them. If you want the book we can mail it to you for 50 cents.

YOUR NAME AND ADDRESS.

Every man and woman, and, for that matter, every child, should be urged very early to adopt some particular way of signing his name and address Yes, as soon as a child can write his name he should be urged to adopt some particular form. If he decides to use only initials let him always do it the same way. If his name is Smith, in view of the great number of Smiths he had better spell out in full his first or second name; but having once decided (perhaps by the aid of his friends) just how he is going to make his signature, let him *always stick to it.* And he should also be encouraged to have a rubber stamp to put on his stationery, so that all can know in plain and unmistakable letters just *what* he is called, and *how* he is addressed. Married women especially should heed the above. It is a woman's privilege to write her name Mrs. John Smith or Mrs. Susan Smith; but she should be urged to do always one or the other. A few days ago "Mrs. John Smith" complained that she sent us some money, and we did not give her credit. After much fuss and bother our book-keeper found she signed her name Mrs. *Susan* Smith, and wrote from a different postoffice from what she had ever written before, and therefore the book-keepers were obliged to open an account with Mrs. Susan Smith at some other postoffice; and hadn't one of the employees happened to remember some honey being placed on the book where no account could be found, I do not know what would have been done.

The better way, by all means, is to have your correct name and address *printed* on envelopes or writing-paper, one or the other, or both It can be done for a few cents. But if this is too much trouble, then get a rubber stamp, and stamp every thing you send out, not only to save this great busy world time and money, but to save *yourself* annoyance and disappointment. Lots of people make haste to call great business firms dishonest, just because these people themselves have not got enough life and push to avoid the trouble of blundering addresses, as I have indicated in the above. If you can not scrape up enough energy to let folks know who you are and where you live, in black and white, you ought to have been born a century or two ago, when it did not matter so very much whether the outside world knew you were alive and kicking or not.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A man to work at bees in Cuba, commencing April 1st. But little experience necessary. All questions gladly answered. Write at once to F. L. POWERS, Artemisa, Cuba, W. I.

WANTED.—To sell ginseng seed at $5.00 per ounce.
A. P. YOUNG, Cave City, Ky.

WANTED.—To sell 10 bbls. White Bliss Triumph potatoes—a little sunburned or green, but all right for seed—not sorted, $2.00 per barrel; will ship in the spring. J. W. BITTENBENDER, Knoxville, Iowa.

WANTED.—To sell at a bargain, 40 colonies of bees in frame hives, in southwestern Georgia. Hives and bees in good condition.
H. M. CARR, Cranfills Gap, Texas.

WANTED.—To exchange a large list of second-hand goods, as good as new, for foundation, mill, and extracted honey. Address
QUIRIN THE QUEEN-BREEDER, Parkertown, Ohio.

WANTED.—Seven cents for sample package of our famous honey and menthol cough-drops.
R. H. SMITH, St. Thomas, Ontario, Canada.

WANTED.—A young man with a fair knowledge of apiculture to do general work on a small farm with an apiary of 150 stands.
JOHN S. MCCLURE, Las Cruces, N. M.

WANTED.—Would like to buy good second-hand hives—8 or 10 frame L. pattern and Heddon—and 200 colonies bees. Describe with price.
ELTON LANE, Route 12, Groton, N. Y.

WANTED.—Comb to render into wax; will pay cash.
A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange Angora goats for any thing useful. ED. W. COLE & CO., Kenton, Ohio.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4¼×4¼ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives. etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. TYLER BROS, Nicolaus, Cal.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. KNAPP, Rochester, Ohio.

WANTED—To sell a 10-h.p. horizontal engine with upright boiler, with pump, smoke-stack, and all connections, for $125.
J. W. BITTENBENDER, Knoxville, Iowa.

WANTED—We want to hear from those having choice comb honey to sell, stating quantity, quality, size, and style of sections, and how packed. If not yet packed for shipment state how soon you can have it ready, and the price asked delivered here or free on board at your place.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Two good, reliable, temperate, and experienced bee-men—men of order and neatness; one of these to thoroughly understand queen-rearing. providing the season or winter proves good.
M. H. MENDLESON, Ventura, Cal.

WANTED.—Those that are thinking of building to send us their names. We shall do your work at reasonable prices, and guarantee satisfaction.
EVERSON & EVERSON, Brilliant, Ohio.

WANTED.—Man with small family, who has some practical knowledge of bee-keeping and is not afraid to work, to work in apiary and fruit farm the coming summer of 1903; house and garden furnished. State wages expected.
A. E. WOODWARD, Grooms, N. Y.

WANTED.—Steady position, by a young man of 21, as apiarist; or book-keeper or salesman in a hustling business; four years' experience in an apiary; correspondence solicited. LAFAYETTE HAINES,
R. F. D. No. 1, Hyde Park, Dutchess Co., N. Y.

WANTED.—An experienced man to take charge of apiaries. Address with references.
DR GEO. D. MITCHELL & CO, Ogden, Utah.

WANTED.—To sell 48 stands of bees. Address
M. F. MARTIN, Manchester, Ohio.

WANTED.—Experienced dairyman and farmer to move into new tenant house and help care for 30 to 40 cows. Stable has cement floor, Bidwell stalls, and Woodward watering device. I ship the milk. Wages, $25.00 per month, house-rent, garden fuel, and other privileges. Give your age, state now many in family; also name and address of your last employer.
J. P. WATTS, Kerrmoor, Pa.

WANTED.—To exchange dry goods, ready made and mink furs (cost $50—sell cheap) for extracted honey or offers. JOS. REID, Mansville, N. Y.

WANTED.—To exchange 6-inch foundation-mill for wax, honey, or $5.00 cash.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Typewriter, wheel hoe and drill, and beeswax. Write for list of property in exchange.
F. H MCFARLAND, Hyde Park, Vermont.

WANTED.—Redwood, cedar, or sugar-pine hive-bodies. State price.
H. VOGELER, New Castle, Cal.

WANTED—To sell 40 colonies of bees in 8 L.-Hoffman frames, at $3.00 each.
C. BROWN, New Castle, Cal.

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Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

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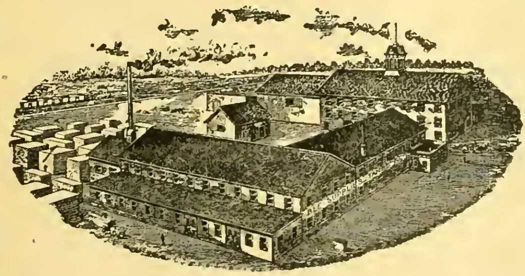

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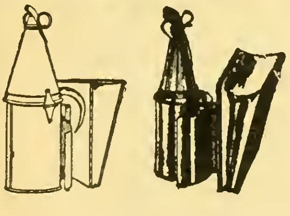
Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. *Write at once for a catalog.*

— AGENCIES —

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Ia.
Chas. Spangler, Kentland, Ind.

Kretchmer Mfg. Co., Box 60, Red Oak, Ia.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

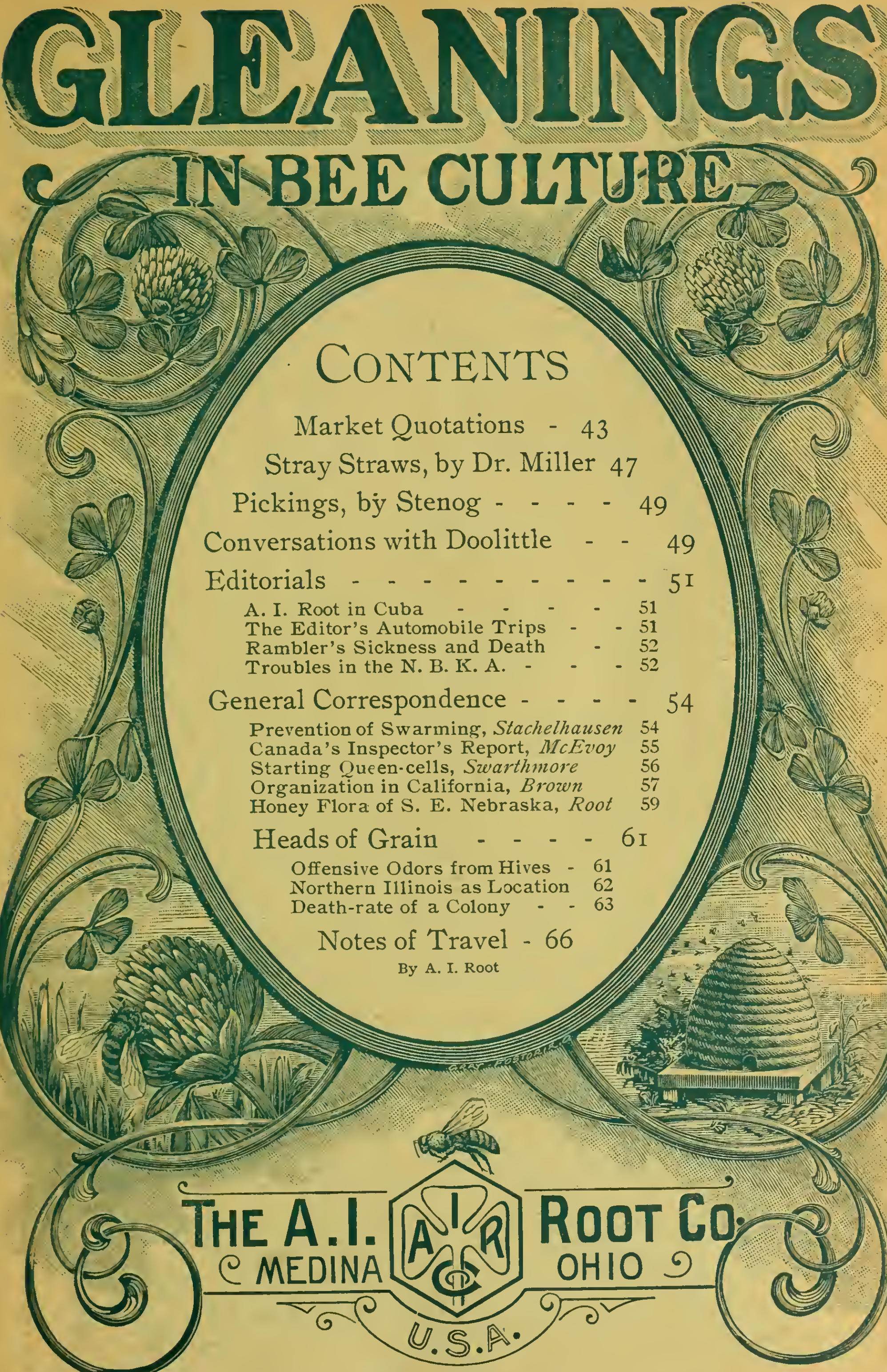
Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch. $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI JANUARY 15 1903 Number 2

GLEANINGS IN BEE CULTURE



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By A. I. Root

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W. W. CARY & SON,
Lyonsville, Massachusetts.

Root's Bee - Supplies

for the South Atlantic States at Root's Prices.

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Quick Shipments and Low Freight Rates.

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One-horse wagons,
Corn-shellers for Poultry,
Family Grist-mills,
Corn and Cob Mills,
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Rawlings Implement Company,
Baltimore, Md.

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and
New England

Bee = Keepers!

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. MASON,
Mechanic Falls, : Maine.

Manager The A. I. Root Co.'s N. E. Agency.

Are You One of Them?

We refer to those successful bee - keepers in Michigan who use Root's Goods. We are the authorized jobbing agents for

The A. I. Root Co. in Michigan.

Send your order to us and save in freight charges and time. Send your name for our 1903 catalog. Beeswax wanted. Early - order discounts, 4 per cent to Jan. 1, 3 per cent to Feb. 15.

M. H. Hunt & Son,
Bell Branch, Mich.

Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

MILWAUKEE.—There is a very quiet condition of matters relating to our market for honey of all kinds. Receipts are not very large, and fancy comb not very plentiful and would sell, but common grades neglected. Stocks of all descriptions are not large. We continue to quote for fancy comb in one-pound sections, 16@17; A1 sections, 14@15; old or common quality, nominal, 10@13. Extracted in barrels, cans, or pails, white, 9@9½; amber, 6½@8. Beeswax, 28@30.

A. V. BISHOP & CO.,
Jan. 10. 119 Buffalo St., Milwaukee, Wis.

PHILADELPHIA.—The demand for comb honey has fallen off some since our last quotation, with a good supply on hand and prices a little easier. This is always the case after Christmas for a few weeks, on account of the people eating so much sweet at Christmas time. We quote fancy white comb honey. 15@16c; No 1 at 14c; No. 2 at 1[illegible]c. Fancy extracted honey, white, 8c; amber, 7c. Beeswax 29c, and in good demand. We are producers of honey and do not handle on commission.

WM. A. SELSER.
Jan. 10. 10 Vine St., Philadelphia, Pa.

ALBANY.—Honey market quiet with light stock and moderate demand for comb at 15@16 for white; clover mixed, 14@15; buckwheat, 13@14. Sharp demand for buckwheat and dark extracted, 7@7½; and selling equal to the light color, at the same price. Beeswax, 28@30.

MACDOUGAL & CO.,
Jan. 7. Albany, N. Y.

CINCINNATI.—The comb honey market is a little quiet, almost everybody is filled up As there is hardly any new supply coming in there is no change in price. Fancy water-white, 16 cts., off grades less. Extracted fancy white clover, 8½@9; alfalfa water white, 6½@7½; amber, in barrels, 5¼@5½. Beeswax, 27@28.

C. H. W. WEBER,
Jan. 9. 2146 Central Ave., Cincinnati, O.

BUFFALO.—The price of honey is firm in this market. Demand a little slow, but holders not inclined to shade prices to sell Fancy white comb, 15@16; A No. 1. 14@15; No. 1, 13½@14; No. 2. 12½@13; No. 3, 12@12½; No. 1 dark, 11@12; No. 2, 10@11. White extracted, 7@7½; amber, 6½@7; dark 5½@6 Beeswax, 28@30.

W. C. TOWNSEND,
Jan. 10. Buffalo, N. Y.

SAN FRANCISCO.—Honey market as follows: Comb, per lb., 10@13. Extracted, water white, 6½@7; light amber, 6@6½; dark amber, 4@5. Beeswax, per lb., 28 cts.

E. H SCHAEFFLE,
Jan. 3. San Francisco, Cal.

NEW YORK.—Demand for comb honey is only fair, but buckwheat extracted is wanted. Fancy comb 15c; buckwheat, 12@13. Beeswax scarce and a good demand, 29@30. FRANCIS H. LEGGETT & CO.,
Jan. 10. Franklin and Varick Sts., New York.

CHICAGO.—The best grades of white comb sell at 15@16 per lb.; travel-stained and light amber, 13@14; darker grades, 10@12 Extracted, 7@8 for white, and 6@7 for amber. Beeswax steady at 30 cents.

R. A. BURNETT & CO.,
Jan. 9. 199 South Water St., Chicago, Ill.

DENVER.—Demand for both comb and extracted honey light, and we do not expect any improvement until after the holidays. Fancy white comb brings $3.50 per case of 24 sections; No. 1 white, $3.10@$3.25; No. 2, $2.75. Extracted, 7½@8⅓ per lb. Beeswax, wanted at 22@26, according to color.

THE COLORADO HONEY PRODUCERS' ASS'N,
Dec. 22. 1440 Market St., Denver, Col.

KANSAS CITY.—Market steady at quotations. We quote fancy white, per case of 24 sections, $3.50; No. 1, $3.40; No. 2 and amber, $3.25. Extracted white, per lb, 7@7½; amber, 6@6½. Beeswax, 27@30

C. C. CLEMONS & CO.,
Dec. 20. 306 Grand Ave., Kansas City, Mo.

FOR SALE.—Light and buckwheat extracted honey in cans and kegs; sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Extracted honey, from alfalfa, at 7½c for No. 1 select, 7c for No. 1, 6½ for No. 2; discount on 1000-lb. lots. Send for sample.

D. S. JENKINS, Las Animas, Col.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at $4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, $4.20 each. Prices on small cans and pails on application.

M. P. RHOADS, Box 216, Las Animas, Colo.

FOR SALE.—Alfalfa water-white honey, 60-lb. cans, two in a case, at 7½c; fancy basswood in 250-lb. bbls., 8c: same in 60-lb. cans, two to a case, 9c. We buy and sell for cash only. E. R. PAHL & CO.,
294, 296 Broadway, Milwaukee, Wis.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

Our Advertisers.

"SAFE ARRIVAL AND SATISFACTION GUARANTEED."

So states the Storrs & Harrison Co., nurserymen, florists, and seedsmen of Painesville, Ohio, in their advertisements, and so they have stated for all the years they have been soliciting the business of our readers.

We have often had dealings with this firm as they are so near Medina; and we recommend our readers, who are not already customers and receive their free catalog, to start right at once by sending their address on a postal for the new 1903 book.

Once more we remind our readers that much valuable information is now found in the books furnished by our advertising friends. Take for example those found in this issue. Our attention is just called to the new departure of the Iowa Incubator Co., Box 197, DesMoines, Ia. Please write them at once for their book.

Cox Bros. write us they are using one of Wilson Bros. mills and it is giving *entire* satisfaction in every way, even better than they were led to expect. They use it for all the work on the ranch, and some for the neighbors as well.

The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for new catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, New York.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

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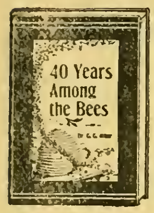

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Stray Straws

By Dr. C. C. Miller.

Severe weather will rule the rest of the winter, if it is a winter of average severity, for thus far it has been mild. [This is apt to be the rule. One extreme is liable to be followed by another; so, let us look out.—Ed.]

You can scald milk or any thing else in aluminum, and it will never burn on or stick," p. 29. But it will "in this locality," friend A. I., and we got it at Montgomery Ward's too. But it takes a hotter fire to make trouble, and the ware is very nice.

The mole spoken of on p. 9 "has a tail as long as that of a mouse, but the animal is larger." The mole that lives "in this locality" is larger than a mouse, but it has a very short tail. I think it has the most beautiful fur I ever saw. I don't think it ever troubles bees.

Doolittle and Stenog must be both good-natured men or there'd be a row between them when they get mixed up the way they have on p. 9. [Yes, by mistake we got our heads mixed; but there's some satisfaction in having such a head as Doolittle's, even if for but a short time.—Stenog.]

Dr. Riehm-Grifte says in *Die Deutsche Bienenzucht* that a queen is killed when balled, neither by stinging nor suffocation, but by lack of food, and rough handling. I suspect that the starving is the usual cause of death, and I have some doubt that a queen is ever stung when balled, unless the bee-keeper meddles. [This would be in harmony with my own observations.—Ed.]

That first-page cover of Gleanings is good, only you ought to have had a queen's egg instead of a hen's egg to contain the "Contents." [You mean that we ought to have adopted the *shape* of the queen's egg instead of that of the hen. Perhaps it would have been more in harmony with the general subject-matter of the journal, but it would not be in harmony with the design from an artistic point of view.—Ed.]

"I do not despair of finding some feasible plan of dealing with a colony that will leave it without the desire to swarm." So I said, p. 7, and then ye editor says, "but the apiarist must somehow have some means of knowing whether a colony will ever think of swarming." Well, when that "feasible plan" is discovered I'll apply it to the colony, and then I'll know that it will never think of swarming. See? [Yep! —Ed.]

The double-drive plan will help a whole lot with forced swarms; and now if there's some way to relieve them from any extra comb building the plan will be getting close to perfection. [It seems to me the scheme of double driving is one of the essentials to the best success in the plan of handling forced swarms. By the way, some one suggested *driven* swarms to apply to all swarms, shaken, shook, brushed, jounced, or forced.—Ed.]

I have some of Luhdorff's phacelia seed planted in a pot standing in the window, and I expect to find out whether it's the same as the ordinary flowering phacelia. My first acquaintance with that was as a window-plant many years ago; and, if I remember rightly, besides having a beautiful flower it was fragrant, although not having the same fragrance when growing in the open air. Later on I may find out whether it's a forage-plant, unless some of those California fellows get thawed out enough to tell us.

Yes, Mr. Editor, give us cuts and illustrations in physical culture that will make us strong and live long. At least put it in the copy of Gleanings you send me, so I can live longer than the others. [Just wait till I get a little time for our artist to show the different poses. You may be interested in knowing that three members of the Root Co., including some of the women-folks, are taking daily physical-culture exercises. It is no fad or hobby, because we have been keeping it up for the last six months, with good results. Persons of sedentary habits can well take them up, and it will, I believe, add years to their lives.—ED.]

GERSTUNG, editor of *Die Deutsche Bienzucht*, quotes the Straw about long-tongued bees, p. 545, and adds, "By the side of this possible fact stands the other, that unused muscles relax and even deteriorates. Both facts, however, stand opposed to the view that long-tongued bees owe their origin to particular queens. It is the conditions of life that exercise determining influence." Does Herr Gerstung mean that the queen has no influence whatever upon her posterity? [There is some truth in what Gerstung says; that is, we found that the tongue-reach is greater during the height of the honey-flow than during the rest of the season. The constant strain to get at the coveted sweets has a tendency to draw the organs out, and possibly "relax" them, as the physicists say, to a point where the natural reach is greater- But I think we must look more to blood and selection than to any other source.—Ed.]

YOU MAY ARGUE all you please, Mr. Editor, with Doovittle about cellar wintering, but I tell you it makes in me an aching void when I read about his putting bees in a place where they will stay all winter long without care and without change of temperture. Say, Bro. Doolittle, what would it cost me for a hillside of the right kind to dig a bee-cave in? and oould you make any reduction by the quantity? [So you envy Doolittle his bee-cellar. I take it that you are not able to secure an even temperature; and I belive that, if the facts were known, there is not one bee-keeper in a thousand who has a cellar or repository where the temperature will remain as uniform throughout the winter, irrespective of outside temperature, as in the Doolittle cellar. For that reason it does not seem advisable for me to counsel giving bees no ventilation, and letting them entirely alone. A plan of procedure that would answer for an ideal cellar like Doolittle's would not answere for the average cellar that is far from being ideal.—ED.]

"INTRODUCING queens from one to three days old," says G. M. Doolittle, p. 9, from an incubator or queen-nursery has proven an unsafe method with me, and one that causes more labor and worry than the time gained would compensate for." I wish he had told us what was the "time gained." When I tried it, it was actually time lost, for I would have a queen laying sooner when I gave a ripe cell than when I gave a young queen. Strange, wasn't it? [Doolittle's experience is about the same as our own. For that reason the lamp-nursery was taken out of the A B C book nearly fifteen year ago. The nursery was used to take care of a surplus of cells when, for example, all nuclei had eiiher virgins or cells. Sometimes a virgin in a nucleus is lost. In such cases a young virgin from the nursery, one or two hours old, would be run in and accepted. But if there is any doubt we find it better to put in a cell where we are not so sure there is a virgin, but only at such times as we have a surplus of such cells.—ED.]

MAIL PRIVILEGES in this country are of the best in some respects, while in other respects we are behind. In some countries commercial quanties of honey can be sent by mail. There seems something peculiar, not to say wrong, in a condition of affairs that allows me to mail a package of honey from Marengo to any part of Germany for less cost than to the nearest town. [This is one of the strange things; and yet it is not so very strange after all when we remember the powerful lobbies the express companies can put up in Congress to prevent the passage of bills that would obviously cut down their business. When we get nearer the millennium we shall have a United States parcel post, in spite of the express companies; and I hope we shall not have to wait beyond the ken of our lifetime either. The people of this great country are coming to a point where they will not allow aggregations of capital to hold their noses on the grindstone forever. When capital overreaches, and keeps on doing it, as it did during the coal strike, the people are apt to have something to say. There, now, I did not mean to go into the realm of politics, or socialism; but I believe the principle of the golden rule is bound to hold greater sway in the near future than it does now.—ED.]

A CLIPPING was sent me, beginning, "The churches are decaying everywhere, and ending." "The influence of the church is dying," while in between was the statement that statistics showed a falling-off in the attendance at Sunday meetings during the past decade of 25 to 60 per cent. Somewhat strangely, in nearly the same mail I recieved the account of a careful census of adults attending church in New York city the three first Sundays in November. Of the 366 churches investigated, the average attendance was 65 per cent of the membership, and 31 per cent of the attendants were men. If the falling-off has been 25 to 60 per cent, the attendance ten years ago must have been 86 to 162 per cent. That is, out of every 10 members, 86 to 162 must have attended! The country isn't going to the dogs just yet. [I am not worrying about the future of the church. Perhaps its growth is not so rapid as we would like to see it, and yet its influence is increasing. The standard of morals in the world is getting higher and higher. In the matter of of temperance, for instance, public sentiment in and out of the church against the drink-traffic is growing stronger every day. Good people are beginning to find there is a power in the church vote, and are using it, and some politicians are beginning to discover it also. When, for example, we look back fifty years, and see what was tolerated in and of the churchf and compare that time with this, we have great cause for rejoicing.— Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

His journeys are ended, his rambles now cease,
He has entered for ever the haven of peace;
'Mid tropical scenes, where nature is best,
He closes his eyes and lies down to rest.

* * *

Not till the Stray Straws and Pickings for last issue were made up was it discovered that Dr. Miller and I had been picking from the same fild, hence there were three items in his department substantially like three of mine. After this I will let the doctor have the straw while I will try to get the head of it.

* * *

Honey is moving, says a late issue of the Sutter Co. *Farmer*. of California. In proof of that it gives the following:

> J. D. Baker, of West Butte, shipped by steamer on the Sacramento River this week a carload of extracted honey to San Francisco. The honey was of good quality, put up in five-gallon cans, two cans to the case, making twelve tons in all. Mr. Baker has about 500 stands, and the product this year was over fifteen tons besides several hundred dollans' worth of wax.

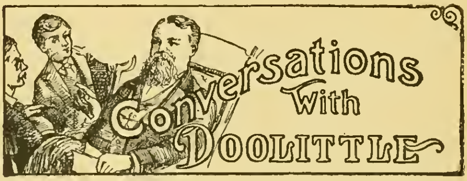
* * *

It will be encouraging to bee-keepers to know that public funds are beeing appropriated for experimental work in their line. We have just received a statement from the State Entomologist of Texas, showing how much damage insects do to the farmer there. In this document we see that the Entomologist has a salary of $1500, and $700 for expenses. As his services are probably worth as much to the bee-keeper as if he were hired for apicultural work exclusively, we may credit this to the side of the bee-man. Then there is a fund of $250 for the apiary exclusively. The Entomologist, Mr. E. D. Sanderson, says, "The bee-keepers ask that we investigate the remedies for foul brood, which has already destroyed several hundred colonies, and threatens the apiaries of the State. Texas is the leading honey and wax producing State, the product amounting to considerably over half a million dollars." He estimates that the people of Texas lose annually about $75,000,000 from insect pests; and how to destroy them is the problem now before the people at large.

* * *

The following is clipped from the California *Fruit Grower;* and although the substance of it is contained in a letter written by Mr. F. E. Brown, in this issue, I give it as showing the importance that is attached to this organization, aside from what bee-keepers say of it. It is a step in the right direction, and shows that the bee-keepers of California will no longer allow buyers to take their honey at any price said buyers are willing to offer. It is in no sense a trust, but a businesslike method of putting honey where there is the largest demand for instead of glutting our large cities with it. Here is the extract:

> Twenty of the largest bee-men in the State have pledged themselves to further the project of a stock company to do business as a corporation under one management, with a capitalization of $25,000. These men will also do every thing possible to maintain the price set by the proposed California association.
>
> This association announces that it will fix and maintain a reasonable standard price, and will use a trademark and seal for the prevention of adulteration.
>
> A committee of bee-men composed of G W. Brodbeck, of this city, G. L. Emerson, of Santa Ana; and L E. Mercer, M. H. Mendelson, and J. F. McIntyre, of Ventura, has been in session perfecting the details of the project, and a preliminary organization has been formed.
>
> It is proposed to have a central warehouse in Los Angeles, and to make that city the principal shipping point. The final idea of the new corporation is to affiliate with the national association and to perfect a solid, substantial organization.



SEPARATING THE WHEAT FROM THE CHAFF.

"Mr. Doolittle, I think I saw something from your pen some years ago about how you arranged in a book the useful articles which appear in our bee literature, so you could turn to them at a moment's notice; and I wish you would tell me something how you did it, for I can not turn to it now."

"Are not all the things which appear in our bee papers useful?"

"They may be to some; but to me much appears like 'chaff;' and what I wish is to have it so I can get the 'wheat' without winnowing over the chaff a second time. In reading the bee papers I find quite a little that appears to me as chaff, while there is some real wheat in every number. Now, how can I separate this wheat from the chaff, and have it so I can at any time turn to and find the wheat without reading the chaff all over?"

"This is a question which once bothered me quite a little, and I studied considerably over the matter, for it was a matter of considerable importance to me. Reading amounts to but very little in and of itself. In order that we may profit by what we read we must remember it, and that at just the time when we wish to put it in practice."

"That is just as I feel in the matter; and as much which is valuable in our bee papers is published out of season, or not at just the time when it should be put in practice, it is almost impossible for me to remember it till the time of practice. Can you tell me of any way or means which will help me remember these things at the right time?"

"While studying along these lines some years ago I purchased a small leather-bound book containing 72 blank leaves: but if you do not intend to use it for more than one year, 24 leaves will do very well. This book I arranged similar to an assessor's, which has the letters of the alphabet, from A to Z, on the outside margin of the leaves. I now cut the leaves just as I would to letter them: but instead of lettering them I wrote on the little square of the first, Jan. 1, then allowing three leaves for this I wrote on the second, Jan. 15; again, allowing three leaves, on the third, Feb. 1, and so on, giving three leaves or six pages for each half-month; but, as I said, if you wish to use a new book every year, one leaf or two pages will be sufficient."

"I think I understand that part, for I have used lettered books in various ways. Now tell me how to use it after I have it all arranged for the 24 half-months of the year."

"When GLEANINGS first comes it is carefully read and laid away in a place set apart for it; and the other bee papers which I take are treated in the same way, so that, at the end of the year, they are in perfect order to be bound. Unless you do this some of the numbers are likely to get lost, which spoils much of the usefulness of our plan. *Every* paper is to be as carefully preserved as we would preserve money, if we are to profit by it. And allow me to say that these bee papers have been more profitable to me than money, for the knowledge gained by and through them has enabled me to accumulate the *money* from the bees by successfully manipulating them, which thing I could not have done save for the bee papers."

"None of your moralizing. I understand about preserving the bee papers. But as you have touched on the matter of binding the year's numbers of GLEANINGS, suppose you tell me how to do that, or, rather, how you do it."

"After paying out nearly as much money for the binding of GLEANINGS as it cost me, I concluded that I would do it myself, which I generally do by driving slim wire nails through and clinching them. This makes each volume handy when I wish to refer to it, and preserves all the market quotations for honey, as well as the advertisements, which are generally thrown out where bound at a book bindery. Advertisements of years ago, and especially the market reports, are of much interest to me by way of comparison with the present."

"Thank you for this hint. Now about how to use the book we are supposed to have fixed."

"In reading, the most important part is to preserve the 'wheat,' as you term it, which we find in our literature, and make good use of it after we have it all preserved in good order. The most of us can not find time to read any volume a second time to get the many points in it which may be of value. If I were obliged to read all a second time to find the things I considered of value to me, I fear I should not get them at all. I carefully read *once* all there is in a paper, and then I want it so I can get at what is of use to me, in a moment, just when wanted at another time. To do this, whenever I sit down to read a fresh paper I have a pencil with me; and when I find a new idea, or an old one I wish to experiment with further, I mark it."

"Please tell me how you mark what you want to read again."

"If I wish to read any whole article I put pencil-marks over the top of it and under the bottom. If only a few sentences, then I draw a mark around the matter so as to enclose that which I consider of value. In this way I can easily find any thing I wish just as quick as I see these marks; and in future years, or at any time I wish to find that which is really valuable in my volume, all I have to do is to read these marked passages and thus get the cream of the whole year in a little time."

"Well, you don't need any book for that."

"No; so far I could get along without any book or any thing of the kind; but it often happens that some of the best ideas are suited only to certain seasons of the year, and that season more than six to nine months from the time that I read it. As my memory is not sufficient for set times and dates I must have some means to remind me of these valuable points, just when they will be of use to me; and that was what led me to get and fix a book, as we have been talking about. This book is within easy reach of the chair which I generally occupy when reading; and as soon as something valuable is marked I jot down the page and subject in the book, under the date to which it is applicable. Thus I have all the matter which I consider valuable to me, contained in the numerous papers which I read, arranged with reference to the time it is to be used, all before me at a moment's notice in this book."

"Will you please explain a little more fully? I do not know that I fully comprehend all of it."

"I think you understood how the valuable things were marked and how written down. Now as we are beginning the year I wish to know all that is valuable in my year's GLEANINGS and other bee papers for 1902, during the first half of January, or between Jan. 1 and Jan. 15, so I open the book at Jan. 1, as written on the little square, and look over all there is on this page; and if, for instance, I find "How to put foundation into sections" (that being a different way of doing this from any which I had previously used); and as this is the time I am putting foundation in sections, preparing for another season's crop, I try the plan there jotted down by way of experiment, if I chance to find such a note regarding putting in foundation in this book. I see you still look a little puzzled. Let me explain more fully. In one of my bee papers I find something about keeping bees from swarming by using the shaking-out process, the writer claiming that this process will not only keep the bees from swarming, but will give a better yield of honey also. But the article was written so it appeared in print during November, while the time when I must use it would be the last half of June; so when first reading and marking, it was jotted down under June 15. We will suppose June 15, 1903, has now arrived, just the time when I could make use of this information to my profit, if I ever can, so I turn to June 15 (by putting my thumb on that date when opening the book), and right there under the title of "shaken swarms, a preventive of swarming, with large honey-yield, try it—*Review*, 1902, pages 337, 338, 339," I find just where to turn to find the matter I wish to know about at just this very time of the year, although it was six months from the time of the year when I wanted it. Reading it I am ready to put it in practice, just as much as I would have been had I just read it in the fresh number of the *Review* for June, 1903. By your looks I see you understand now."

"Yes, I do. I thank you, and will go, as I have already stayed too long."

Editorial
By E. R. Root.

In our last issue we made reference to the fact that Mr. Jacob Alpaugh, of Galt, Ontario, intended to accompany A. I. Root to Cuba. While at Fort Pierce, Florida, he learned that his bees and bee-fixtures that he had in Bruce Co., Ontario, burned on the 27th. The bees were in the cellar and the fixtures up stairs. Mr. Alpaugh's appliances were probably something very much above the average. He is a fine workman and an inventor, and his loss will mean more to him than to the average person. We extend to him our sincerest sympathies.

THAT CUBAN SHIPMENT; HOW A. I. R. ENJOYS HIMSELF IN CUBA.

Our Mr. F. J. Wardell writes that, instead of there being only a bushel and a half of dead bees in the shipment that went from here to Cuba, there were *five* bushels, and that, furthermore, there was a rapid depletion after the honey-flow began. But it seems to me that, out of a shipment of 500 colonies to Cuba, the loss of even five bushels of bees would be insignificant. It would be almost like the proverbial drop in the bucket. Then the bees we sent had borne some of the toil of the season around Medina, and had practically served out their best days. So it was not at all surprising that, when the heavy honey-flow came on in Cuba, these bees would "peter out." A heavy honey-flow anywhere is liable to use up the old bees.

A. I. R. is very much pleased with the Cuban yard. He says it is one of the prettiest apiaries he ever saw. He has been writing Our Homes and other matter outdoors. When he left Medina he had a hard cold, and wore a heavy overcoat, and a fur cap drawn down over his head. He looked as if he were pinched with the shivers. While we are having zero weather and a high wind, I can just imagine the pleasure he is having sitting outdoors writing for GLEANINGS, and perhaps in his shirt-sleeves, enjoying a genuine winter's summer.

THE EDITOR'S AUTOMOBILE TRIP AMONG THE BEE-KEEPERS THIS SUMMER.

I have toured among bee-keepers on the bicycle; have ground centuries day after day, with the sweat rolling down off my nose; I have traveled on horseback, and in the buggy; I have even gone so far as to attempt to ride a burro at the fast pace of a mile an hour, and got off at the end of the first half-hour quite used up. I have toured on steam-cars and electric cars; and now there seems to be only one means of locomotion that I have not yet tried; and this summer, nothing preventing, I hope to try the eccentricities of a gasoline-automobile. As soon as the roads will permit I expect to make a trip on a long-distance "auto" among the bee-keepers of New York, Pennsylvania, Indiana, and Michigan. I have just placed my order for a 1903 Friedman car with double-opposed-cylinder seven-horse-power gasoline-engine. It has all the latest improvements, and it is capable of being speeded all the way from one to 25 miles per hour. It is guaranteed to plow through sand; and I should not be surprised, judging from its substantial construction, that it might plow through mud. Mrs. E. R. R. and Leland will accompany me on some of my trips, for I will shoot out one or two hundred miles, making Medina the hub of the wheel, so to speak, and my various trips representing the spokes.

The machine is ordered, and will be delivered about the first of February. In the mean time I am studying up gasoline-engines and automobiles in general, for I presume I shall have some disagreeable stops, for all gasoline-engines have a queer way of being "balky" at times. I shall make some short trips along about the first of May, roads permitting, and will begin my long tours some time in June.

We have been testing the efficiency of the street-car for carrying an apiarist to and from our yards; and having had some experience in having horses nearly killed (and one killed) from stings, I am now wondering if I can not drive an automobile clear up to the bees without its kicking up a fracas and smashing things all into smithereens. I have been in two or three horse runaways, and Mrs. Root has a mortal terror every time she gets behind a spirited animal. We are now hoping for a genuine good time visiting among bee-keepers without being scared to death every time we pass a thrashing-engine or a street-car.

The machine I have purchased is a Friedman, made by the Friedman Automobile Co., 3 Van Buren St., Chicago; and if you wish to look at an up-to-date beautiful machine—a veritable "red devil" capable of standing hard knocks, and of making fast time, send for a circular to the above address. Better do it any way; then if perchance I come through your vicinity you may recognize its "satanic majesty" coming down the road at a terrific clip.

THE RAMBLER SICK IN CUBA.

Mr. J. H. Martin, better known as the Rambler, has been very sick with fever; but from the last account he was on the mend. He is getting to be pretty well advanced in life, reaching 63 last December; and the last time I saw him (in California) I could see that age was beginning to tell on him. He has been working hard in Cuba securing a crop of honey, and we trust he will now save his strength sufficiently so we shall have the opportunity to enjoy again his good-natured chats.

Later, Jan. 13. — The sad news has just been cabled us by our Manager, Mr. de Beche, that Mr. Martin is dead. Of course, there were no particulars; but the run of fever was evidently too much for him, and the end came all too unexpectedly. That broken blackboard on page 946 by artist Murray was almost prophetic of the end. It was almost Rambler's last note to the public, and as I look at the broken and shattered pieces I can not but think of the genial soul, the light of which for this earth has gone out forever. Particulars will be given in our next issue, together with a biographical sketch.

TROUBLES IN THE NATIONAL BEE-KEEPERS' ASSOCIATION.

Our readers will remember that last summer a complication arose in the selection of a General Manager. The board of Directors, having discovered that it had appointed Mr. E. T. Abbott illegally to that office, recalled its action, and requested Mr. Secor, whose resignation had not been formally accepted, to fill out the unexpired term, which he did.

A good deal of bitterness and unpleasant feeling was engendered, but it was finally left to the December election. At the last election Mr. Secor put out the following ballot:

BALLOT: to be used by members of National Bee-keepers' Association in December, 1902.

For General Manager for 1903, to succeed Eugene Secor, who wishes to retire.
(N. E France, of Wisconsin, has been regularly and properly nominated, and is believed to be worthy of your support.)
(Write name voted for.)

....

For 3 Directors to succeed Thos. G. Newman, G. M. Doolittle, and W. F. Marks.
Write 3 names below.

....

Sign your name, and mail AT ONCE.

....

The name of Mr. N. E. France was the only one of the candidates in the field that was named; and immediately a good many inquired why it was that other names that had been proposed in the bee journals were not also incorporated in the ballot, and why there should be "electioneering" for the one candidate. Some complaint was made because the amendments offered by Mr. Abbott at Denver were not also offered for adoption or rejection at the hands of the membership, and no reason given for their omission. There was a call for a new election, as many of the friends of Mr. France believed that the ballot was unfair—that either no name should have been mentioned on the ballot, as has been the custom heretofore, or else that all the names should be included. In reply to these various charges Mr. Secor makes the following statement:

Mr. W. Z. Hutchinson:—I have your recent letter in which you say there is some dissatisfaction among some of the members of the Association regarding the form of ballot recently sent out, and because there were no constitutional amendments submitted. I am sure that any fair-minded member will, when he learns the facts in the case, exonerate the General Manager from blame in both cases. The reason why Mr. France's name was mentioned on the voting-blank was that he was the *only person* nominated in a proper manner. His name had been regularly presented to the Chairman of the Board, and seconded by at least half a dozen members. It therefore came to me officially, and I was obliged to call attention to it.

Perhaps it may be stated that other names had been mentioned in some of the Bee-journals. Granted. I now think I remember one person who so nominated *three or four men for the same office.* But by what constitutional provision is the Board of Directors or the General Manager required to take cognizance of every suggestion made by every person who may write to periodicals published in the United States? Why were not these nominations made to the proper officials of the Association? Unless these matters are brought to me personally I can not undertake the responsibility of endorsing them.

Now as to the constitutional amendments offered at the Denver convention: How could I submit so important a matter as that to a vote without a word from the Secretary? In fact, I never saw a copy of them until the voting-blanks had been mailed, and then only a stenographer's report of them. Dr. Mason wrote me, soon before his death, that he had no copy of the proposed amendments; that they had never been turned over to him. If the Secretary of the Association could not certify what the proposed amendments were, how should it be expected that I should take the responsibility of interpreting them?

I said before, and now repeat, that I did not see even a purported copy of any proposed amendments till after the voting-blanks had been printed and sent out. If we are not to be governed by constitutional authority, why have a constitution? If we do not practice business methods, and follow parliamentary usages, our association is but a rope of sand and is not worth saving

I hope soon to turn over to my successor the records and funds of the largest and most prosperous bee-keepers' association in the world: and if we will stop our quibbling about unimportant matters, and put our shoulders to the wheel in the spirit of fraternal helpfulness, the future of the Association will be brighter than ever; but if factionalism and love of office prevail it will be rent in twain, and die a premature death

EUGENE SECOR, *General Manager.*

This seems like a reasonable and fair statement save in one point: I don't see that an explanation has been offered why the name of Mr. France (and I voted for him and will vote for him again if given a chance) should be favorably recommended on the blank ballot that is supposed to favor no one. I presume Mr. Secor did not intend to have the statement construed as electioneering matter, for he is a man who means to be fair.

I am free to acknowledge that I was one of the parties who was in favor of a new election, and am yet if it can be held without bringing greater complications. I took the ground that, while I believed Mr. Secor may have proceeded in a perfectly legal manner, the ballot has the *appearance* of unfairness. I had come in possession of information to the effect that many who expected to vote for Mr. France voted for Mr. Abbott, to rebuke what they thought was an unfair ballot.

The Directors are talking these matters over informally among themselves. Just what action they will take can not now be stated. It may be the constitution will not permit of a new election. I do not see it that way. It is possible that a new vote may introduce more complications more serious than those now before us. Many honest men in whom I have confidence think so. They take the ground that, while the ballot may have been a little unfair, there was nothing illegal about it: that a new election would be illegal, as the constitution provides that the election shall be held in December.

Mr. Secor might have said that the amendments as published in the *Modern Farmer* were not the same as those that were offered at the Denver convention. In the first place, the wording was changed in minor points; and in the second place, important limiting clauses, suggested by members of the convention, and which Mr. Abbott there accepted, are conspicuous by their absence. Amendments to be voted on should be the same as those offered at the former meeting.

If there was ever a time when wise counsels and cool heads should prevail, it is now. It is no time for indulging in fault-finding until we know just what action the Directors will or will not take.

I am willing to make the best of it in either case, election or no election; and if we can all do that we shall soon have harmony in the splendid organization that we have been laboring for years to develop. I have no sympathy with the idea that the association had better be smashed if we can't have things according to our notions of right and wrong. There is a large chance for honest difference of opinion.

I suggest that the membership agree to abide by the decision of the Directors: and that the Board take time enough to go all over the case carefully, and then decide what is best to do.

THAT PURE-FOOD BILL NOW BEFORE THE SENATE; DO IT NOW.

IT will be remembered that I referred, in our last issue, to the fact that the pure-food bill had passed the lower house of Congress, and was then before the Senate; and I asked our readers to write their Senators, urging their support of the measure. The following letter from Prof. H. W. Wiley, Chief Chemist of the Department of Agriculture, Washington, will explain itself:

Dear Mr. Root:—I am gratified in reading your article on the pure-food bill, on page 11 of GLEANINGS for January. This is a righteous measure, and the good word you say in regard to it is the most helpful at this time. I wish that you could approach the Senators from Ohio in some way so as to induce them to work for this bill and secure favorable action before the end of the session. Every influence which is now brought to bear on the Senators in favor of the bill will do much good.

Thanking you for your interest in the matter, and for the good work which you are doing all along the line of bee culture, I am, H. W. WILEY,

Chief of Bureau of Chemistry.

Washington, D. C., Jan. 8.

Prof. Wiley is in position to know whether this measure is a good one or not, and when he endorses it that should be enough. I do not see how any Senator who has any regard for the stomachs of his constituents can refuse to support it. I wrote to our own Senators, and received from each a statement, signed by his secretary, that my letter would receive "careful consideration," and that is all I know. I urge the bee-keepers of Ohio, every one of them, to write one letter to Senator J. B. Foraker, and another to Senator M. A. Hanna, of the United States Senate, Washington, D. C., urging them to do all they can to bring this "righteous measure" to a vote before the session ends; and it is incumbent on every bee-keeper in every other State to do likewise by his own Senators.

I do not believe our subscribers fully realize how important this is. Nothing that has come up in years will do more to suppress adulteration than this. If I could have my way, every one would send in a letter, if he has not already done so, before he ate or slept. *Do it now* is a very good rule, especially in a case like this.

WE are inclosing an index for 1902 in this issue. We received so many requests from our subscribers for an index that we concluded we had better send one to every subscriber. We have been greatly delayed in our printing department, or otherwise this index would have been out sooner. The present index is the most voluminous, by all odds, we have ever sent out.

GENERAL
CORRESPONDENCE.

PREVENTION OF SWARMING; COMB-HONEY PRODUCTION.

The Veteran of the Brushed-Swarm Method Tells How his Method Differs from those Recently Spoken of in the Bee Journals; the Caged-Queen Plan of Preventing Swarming.

BY L. STACHELHAUSEN.

In the last few months I have found in GLEANINGS nearly 30 articles about brushed swarms. Nearly all of the writers criticise or recommend brushed, shook, or forced swarms for increase in place of natural swarms. Only three of the writers seem to pay any attention to my method, described in GLEANINGS for Nov. 1, 1900, which designs to *prevent all swarming and all increase*. We see that both manipulations are just opposite; they are similar only in this respect, that in both cases the bees are shaken or brushed from the combs. This shaking of bees from the combs is one of the most common and regular operations in the apiary—nearly as much so as smoking the bees. If we need a single brood comb for any purpose we shake the bees from it. If we sell bees by the pound we shake and brush them through a funnel from the combs into a box. In artificial swarming we shake. Before the invention of the bee-escape we had to shake and brush the bees from the honey-combs for extracting; and for a few years we have jounced the whole super, *a la* Martin, and that is a wholesale shaking.

That artificial swarms can be made by shaking and brushing the bees from the brood-combs, I have known at least since 1878. In 1883 I worked an out-apiary for comb honey, and controlled swarming to my full satisfaction by shaking the bees on starters; that is, by artificial swarming, and had a good honey crop too. It is only about 4 years that I have experimented to *prevent* swarming entirely by this manipulation of shaking and brushing. I caught the idea by scientific speculation, and the whole thing was new to the bee-keepers when I published my article in Nov., 1900, and it is still not understood as yet, as so many prominent bee-keepers do not see the difference between my method and the forced swarm for increase. That these forced swarms, known more than twenty years, have gained more attention, I was glad to observe; but it seems to me this is a very slow progress, as, for instance, Doolittle recommended the plan repeatedly in GLEANINGS.

My method of preventing swarms is something quite different. In the spring, and before the honey-flow, we can generally prevent swarming by the use of very large hives, and our colonies develop in them to an admirable strength. When the honey-flow commences, I remove *all* the brood, because the young bees, which would hatch every day in large numbers, would not find enough young larvæ to be nourished, and this causes an extension of the blood, and, in consequence, the swarming fever. A surplus of young bees compared with the number of young larvæ in the hive, will soon cause swarming under favorable conditions. This is not merely theory, but it can be proven by experiment.

This brood taken away *must* be given back to the colony as soon as it is changed to bees of such an age that they will not cause swarming any more, and will be able to help in gathering honey.

This giving back *all* the bees when they are ready for doing field work is the main point in my management. It can be done in different ways—either by shaking the bees from the brood-combs twice in front of the main colony, or by moving the hive with the brood-combs, and so, *a la* Heddon, drawing the bees from it to the main colony, at last by shaking all the bees 21 days afterward from the now empty combs in front of the main colony. Of course, this shaking can be done only once, and earlier—for instance, on the tenth day, and the capped brood-combs used elsewhere. This is something between the two manipulations.

When all the brood is removed, the brood-chamber is contracted, and starters are given. This forces the bees up into the sections and causes them to work there at once. I think this is the best possible condition of a colony for storing honey in the sections.

The difference between a forced swarm and my method is that, by forming a swarm, we divide the colony *permanently*, giving to one part nearly all the bees and the queen; to the other part, only a few bees and all the brood.

By my method for producing comb honey, and at the same time preventing swarming and increase, I remove the brood and a few bees *temporarily* only. The idea is to remove the young bees and give them employment in a separate hive till they are old enough to do field work in the main colony. We see that, by this method, the field force of a colony is not diminished at all.

The only objection worth mentioning is that the colony has to build a set of new combs, and this will take some work and some honey. I am of the opinion that a colony during a good honey-flow produces wax arbitrarily, especially if little or no brood is present—that is, if the colony is in the condition of a swarm. The production of wax will consume some honey; but this is more than balanced by the multiplied vigor of the swarm. This is of so much value that sometimes during a short honey-flow we may get a considerable amount of surplus honey from strong swarms, while other colonies not divided would give no surplus at all, but would raise a number of useless consumers. That a swarm hived on starters will give more surplus honey in sections than a swarm hived on empty combs is proven by experiments conducted by Hutchinson about 20 years ago. Under some circumstances foundation may be preferable; but to give empty combs to a forced or natural swarm is a mistake at all times, if comb honey in sections is desired.

Another method of preventing swarms is to remove or cage the queen and to cut out the queen-cells at the right time once or twice, and at last introduce or liberate another or the same queen. Compared with my plan I see some objections, and the plan has not found many followers, so far as I know. As soon as the queen is removed or caged, the swarming impulse is started at once, and can be lessened afterward only by weakening the colony considerably. With my method the swarming impulse is *prevented* in the main colony, or checked at once, if queen-cells should have been started, when the colony is shaken from the combs.

The swarming impulse dominates in the hive with the brood-combs; but here it is no disadvantage, because this colony can't swarm before a young queen will hatch.

Again, colonies in this condition will not work with the same vigor as a swarm. In the third place, finding the queen and caging her takes more time with these strong colonies than shaking the bees and the queen from the combs, to say nothing about hunting up queen-cells and cutting them out. Fourth, as the laying of eggs is discontinued as long as the queen is removed or caged, the colony will get weak at a certain time, and this is an objection if the honey-flow is of long duration or if a second honey-flow is to be expected later, as is the case in my locality.

According to Stray Straws, Dec. 1, Dr. C. C. Miller seems to prefer to breed a non-swarming race of bees to prevent swarming. It seems to me this is a very difficult problem, and I am not willing to wait till it is solved if I wish to establish an out-apiary. My experience with Carniolans and North German heather bees teaches me that the most prolific races of bees are those which swarm the most. The Italian bees do not swarm as much as these two races, because they diminish breeding as soon as a honey-flow of any amount is beginning; and this qualification is not always desirable. If we would breed a non-swarming race of bees it seems to me that this race may not have the desirable prolificness, and we want prolific queens from early spring till the commencement of the honey-flow, and we should give them a chance to lay as many eggs as possible at that time. By using large hives this is accomplished in the easiest way. In most localities, and here in most years, the colonies in these large hives will not swarm before the main honey-flow, but they are not in proper condition for the production of comb honey. I contract the brood-nest as described above, and bring the colony into the condition of a swarm. This forces the bees at once into the sections, and causes the comb honey to be whiter than if produced over old brood-combs.

We know that a strong swarm, just before the main flow commences, is desirable for comb-honey production. It has the only objection, that, during the first 21 days, no young bees are hatching, and that this swarm will get weaker every day by losing old field bees. I overcome this objection by giving back all the bees at the right time, so the colony will always have as many field bees as it would have if I had never manipulated it or than the colony would have had if no swarming took place; consequently I can see no reason why it should not gather as much honey as another colony not manipulated which did not swarm.

The necessary manipulations are not difficult, and do not take much time; and I think it is hardly possible to find a more simple and more profitable way to prevent swarming, with the same security, if we work our colonies for comb honey in sections.

In the above I have neglected all points of less importance which I explained in my two articles in GLEANINGS for Nov. 1 and Dec. 1. I have tried to explain the principles of my method as plainly as possible, without theorizing very much, and I hope that this management will be understood now by the bee-keepers.

Converse, Tex.

[Your plan, as I understand it, does not differ greatly from the brushed-swarm plan lately advocated, where the colony is given back its brood in the form of bees at a second drive. It has seemed to me that this second brushing or drive was a very important feature of the plan. Without it one will lose a large part of the benefit. The Stachelhausen scheme of brushing or shaking has come to stay, I think, even if we were slow to take hold of it at first. We owe friend S. a vote of thanks.—ED.]

CANADA'S FOUL-BROOD INSPECTOR'S REPORT.

The Work of a Successful Inspector in Ontario.

BY WM. M'EVOY.

When on my rounds through the province, inspecting apiaries, I always picked out the best man in every locality that I went into to go the rounds with me, and taught him how to tell foul brood in every form and stage, and also how to cure the diseased apiaries in the shortest possible time with the least loss of time and materials, and finish by having these same apiaries built up into good paying ones. By this system of having a good man in nearly every locality I was able to manage the business for the whole province, and did get hundreds of apiaries cured of foul brood, and very many of these are among the best-paying ones now in Ontario. In all cases of disputes between neighbors (and I had many of these to deal with) I went back very soon after, and in almost every case I succeeded in getting peace of the most lasting kind made. I often had all I could do to keep some men from rushing into the courts with cases against parties from whom they bought diseased colonies. In some cases notes for over $200 had been given, and in others the cash had been paid. I often begged of these sorely troubled men not to go to law, but to leave all to me to get justice done, and this they did do in every case, and I got justice done, and kept every case out of court.

Where many colonies were sound, and only a few diseased, and a note given, I arranged for the diseased ones not to be paid for, but every dollar to be paid up in full on all that I found sound. The one man got the diseased ones for the curing, and the other his pay for the good ones.

Some of the sales were so unjust that I pressed for the money to be given up at once, and it was. My method of treatment never fails to make a perfect cure of every diseased apiary when the owners do their work right, and nearly every bee-keeper does it; but where they don't I have to see that they do.

The bee industry is booming in Ontario now, and at our convention held lately in Barrie a "Honey Exchange" was started, and I believe it is going to prove to be the best thing that has been brought forward in many years.

During the season of 1902 I visited bee-yards in the counties of Huron, Middlesex, Perth, Brant, Wentworth, Lincoln, Welland, Halton, York, Cardwell, Grey, and Simcoe. I inspected 91 apiaries and found foul brood in 30 of them, and dead brood of other kinds in many others which had been mistaken for foul brood. I also found several fine apiaries completely cured of foul brood that had been reported to be diseased.

The frequent showers that we had in the early and middle part of the past honey season kept the bees in their hives for hours at a time; and this taking place when the bees had a very large quantity of larvæ to feed caused a rapid using-up of the stores; and as fast as the cells were emptied the queens laid in them, and soon after that all brood-chambers became full of brood: and as they were left in that condition with the bees being driven in from time to time by the rains which were followed by sudden warm spells, it brought on the greatest rage of swarming ever known in Ontario, and created a great demand for comb foundation; and some bee-keepers, not having any on hand, and not expecting to get any very soon, used some old combs (that were saved from colonies that had died from disease), and spread the genuine article—a thing the same parties will never do again.

All old diseased combs should be melted and put through a wax-press, as that is the only kind of extractor that will take all the wax out of old combs.

It would greatly improve the apiaries in many localities if their owners would use more foundation and melt a part of their old combs each year until they were all renewed.

While on my rounds through the province I was much pleased with the very generous treatment that I received from every bee-keeper.

Woodburn, Ont.

[It was Mr. J. B. Hall, at one of the conventions I had the pleasure of attending, who facetiously remarked that "McEvoy's Irish blarney" would carry him through everywhere; that opposition and fighting would vanish immediately, and I should judge it had. Ontario is to be congratulated on having so able and tactful a man for inspector.—Ed.]

CATCHING BEES TO START CELLS.

How Swarthmore Catches up Young Bees, While They are Out for Play, to Give his Cells a Good Start; Opening Hives Unnecessary; Robbing Entirely Prevented.

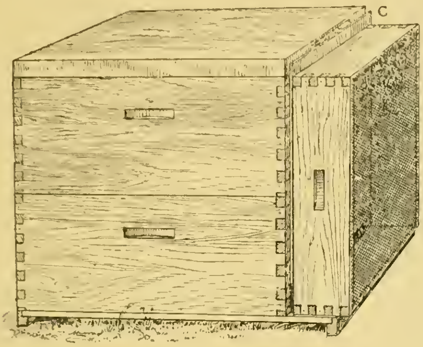
BY SWARTHMORE.

I have often noticed, in starting queen-cells, that the bees which do the feeding and the ones that are the first affected by the loss of their queen, are those just at the age of flight. The older ones, just going to field, feed larvæ if forced to it and the very young bees do some nursing, if need be; but the bulk of the feeding, under normal conditions, is done by the bees one sees on playspells at certain times of the day.

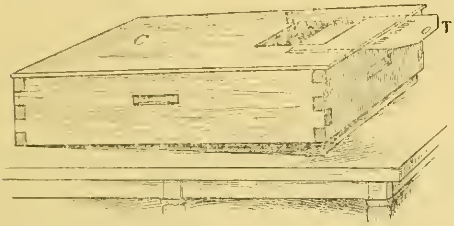
A pint of bees of the correct age will start more cells, and feed the queen larvæ more liberally, than a quarter-peck of old, young, and quite young bees mixed. It's the older bees that create disorder in their efforts to escape from the cell-starting box. They smell the new honey and pollen, and are wild to bring it to the hive. And so with the nurses. They thrash and mourn at the loss of their queen and brood; they have no desire other than for a queen; and when furnished with the larvæ their wants are entirely supplied. Then they will turn to cell-building with a will, and remain as quiet as bees can under confinement.

It is impossible to shake from brood-combs, in the ordinary way, only bees of the correct age for queen-cell starting. Even if done at noon, more or less field bees and plenty of quite young ones are shaken into the ventilated box. It can not be helped unless one catches up a cell-starting force while the little dears are at play.

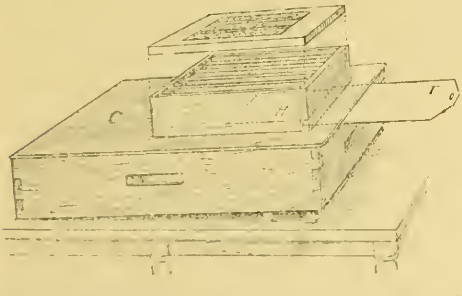
I have used with success a trap-box made from an empty super for holding 4¼ sections, which I place at the front of a full hive, end up, for a few minutes, as the young bees are just starting out on a cleansing flight, and in this way catch up all the bees needed to start a batch of cells, with very little trouble, and practically no labor. Just stand aside and let the screen fill up. When full, tilt the super forward; and as you do so, slide the thin lid, C, down so as to cover completely the back opening of the super. The first opening is covered with wire net, as is distinctly shown.



Carry the trap to the operating-room and place it upon a bench of convenient height, wire down, and raised upon blocks to admit air, and then let it remain until the bees fairly beg for a bit of brood or a queen.



An opening is cut through the lid, C, which is covered with a tin slide, T, until the bees become fully aware of their queenlessness, then they are admitted to a set of combs, tiered above the super, by simply drawing the tin slide, T. The bees will almost immediately troop joyously up and take possession of the combs. Give them larvæ at once.



I use a small hive-body holding 5 combs 4¼×8½. This I place directly over the opening, H. On the combs are placed the cell-bars for holding Swarthmore compressed cups; and as soon as the bees occupy the combs the larvæ are inserted through the holes in the cell-bars, each cup having been supplied with an egg deposited there by the breeding queen. Twenty-four cups are given, and all are generally accepted. The body being small, the cluster is compact, and heat is maintained, yet ventilation is good, and, as a result, we get fine cells.

ORGANIZATION AMONG BEE-KEEPERS IN CALIFORNIA.

California Organized; Organization Begun on a New and Substantial Basis.

BY F. E. BROWN.

Organization is the watchword on the Pacific coast among the bee-keepers, and it behooves the committee of the National organizers to do fast work or the local branches of the National Association will be far in advance of the mother order.

Last week the writer went to Los Angeles to attend the California State Bee-keepers' Association, and there was much enthusiasm along the line of national organization, and I assure you I did all I could to promote the national idea of marketing honey, and wish to report that my time was not wasted. There was a committee appointed at that convention to organize for the marketing of honey, consisting of L. E. Mercer. G. W. Broadbeck, M. H. Mendleson, J. F. McIntyre, Emerson Bro's, and F. E. Brown. This committee spent one day after the meeting adjourned, and effected one of the most substantial organizations ever known on this coast.

The name of the new organization is the California National Honey-producers' Association. It is a stock company, and the papers of incorporation are now pending; term of years fifty, with a capital stock of $25,000, each stand of bees to represent a share, with a par value of five cents per share. This is so placed that it will not exclude any one from coming in. They are to have a board of five directors, who will elect and employ a local or general manager, whose duty will be to grade all honey, seal it with a seal bearing the name of the National Association, which will guarantee to its consumers the pure article. After the honey is graded and sealed it is never to be opened until it is opened for consumption. Any one who will buy a case of California honey whose seal has not been affixed, or if it has been broken, will in the future take the risk of getting what he orders; but on the other hand, if the package that he orders bears the seal of the California National Honey-producers' Association he can depend upon it he has the genuine article. This should be encouraged everywhere; and let every locality so organize; but be sure to recognize the National Honey-producers' Association by leaving a place to couple on when the latter organization has been perfected.

Grading-rules will be discussed so that they will be uniform as nearly as possible. When the official grader of the National Honey-producers' Association takes a sample out of a case of honey, this sample is then placed in a sample bottle, and the bottle is then placed in a hole that has previously been bored in the center-piece of the shipping case, so when the honey in any case needs to be sampled it will not be necessary to break the seal, but simply lift the sample bottle from the center-board and you have the correct sample before you; and that, too, in the proper form so you can see it.

I again suggest that every well-to-do bee-keeper, or any other one of good standing where there is no commercial organization, take the responsibility upon himself and effect such an organization. The plan of the Colorado Honey-producers' Ass'n is a good one. It is very much like ours, and perhaps the Colorado plan is better known than some other. Have a central place to transact the business; also a business manager to do the business, whose duty should be to grade, seal, and sell all the products of its members. Except the honey sold at retail, all honey sold at retail by any producer will be free from any charge of the Association. And any member who can turn over to the manager of the local Association an order for a car of honey will receive a specified per cent of the sale of the same, up to the amount of his own product. This the local Association can just as well do as to pay it to some broker; and in this way the producer who now has a trade, and is selling by the carload lot, will still retain his customers, and it will be made an object for him to do so; and the same way with the retail man. He will not be called upon for a commission for the honey that he sells in this way, by retail—I mean in lots less than carloads; so you will see that it encourages the selling of the honey by the members, both in small and car lots, and at the same time it is the strictest kind of co-operation, and not competition as we now have it.

When the National Honey-producers' Association is fully organized it will be a gigantic brokerage system, one that will be perfectly safe and reliable, one in which all its goods will be of its own production, and offered to the market from these local organizations; in other words, these local organizations, which are now seeking a market for their honey, will then find this National Honey-producers' Association a channel in which to market their goods, and a small commission will be paid to the N. H. P. A., which will be very small, and smaller as the volume of the business increases.

The article published in the *Bee-keepers' Review* for December, by E. B. Tyrrel, has many points that are worthy of consideration. He mentions the necessity of competent organizers to work up the local organizations. This, I think, is well, and along this line I have worked, and have reached every convention possible. Co-operation and organization of a national type has been my hobby.

But I can not see how it is going to be such a hard task as Mr. Tyrrell seems to be impressed with; for when the plan is decided upon by the committee, and accepted by the National Bee-keepers' Association, it will be a very easy matter to elect the proper officers, and then proceed to business, while the honey that is now marketed by the local association will not all be turned over to the National the first year. It will grow in favor year by year, until soon we shall be in control of the entire output. The thing now to do is to effect the local orders everywhere; and as soon as the other part of the machinery is in working order, then couple on, and we are then one great train, loaded with the purest honey that is so sealed that it can not be tampered with until it is in the home of the consumer, where we will unload and load up our cars with the gold that has heretofore gone to build up the palaces of the millionaire. Come along, brethren; don't be afraid of a good thing.

If it were possible for this committee on plans to get together, then some speedy work could be accomplished; the machinery could be set to work, and organizers could be placed in the field, armed with definite plans, and we should be prepared to handle the coming crop. While this would call for some expenditure of money, it would be a saving of far more money by controlling what will naturally be lost if we continue as we are another season.

[The California bee-keepers are proceeding along the right lines. GLEANINGS will be glad to assist them in any way in its power, and its columns are open for any thing further they may desire to say.

Mr. F. E. Brown was one of the committee appointed at the last National convention at Denver to consider plans for the formation of a National Honey-producers' Exchange or Association, said organization to co-operate with the local State organizations operating on the same line. California has taken a right step forward. If it selects a good manager, as did the Colorado organization, all will go well. An exchange may be ever so well organized and equipped; but if it does not have a good man back of it, with business qualifications, it is liable to be a failure. Mr. Frank Rauchfuss, of Denver, Col., has proven to be an ideal manager. He is genial, honest, and a good business man; and, what is more, the bee-keepers of Colorado have confidence in him. He has been tried, and not found wanting.—ED.]

THE HONEY FLORA OF SOUTHEASTERN NEBRASKA.

The Other Plants Besides Catnip Found in the Vicinity of Dr. Gandy's Home, Humboldt, Neb.

BY E. R. ROOT.

On p. 805, Oct. 1, I stated, in referring to my visit at the home of Dr. Gandy, that it was my opinion that catnip did not cut very much of a figure in honey production, in the locality, and then added that I would, later on, give some photos of other honey-plants. The land for the most part is deep and rich, of a chestnut or black color. The natural wild flora is very abundant, but perhaps not more so than in other portions of Nebraska. Dr. Gandy kindly drove Mr. Hutchinson, Mr. Whitcomb, and myself over the country, giving us an excellent opportunity to take photos along the way, and some of those that I then took I now take pleasure in presenting to our readers. In Figure 1 is shown a thrifty-growing catnip-plant in Dr. Gandy's bee-yard just back of his house. His little daughter, and his son, Dr. Gandy, Jr., stand in the rear. His son is, I should say, about 5 feet 9 in height, and so the reader can get an idea of the size of the plant, although this is only one plant.

While on the road leading south from town Dr. Gandy told us something of the value of buckbush as a honey-plant, and then stopped before a good-sized field of it that he had sown on some waste land. The plant was out of bloom at the

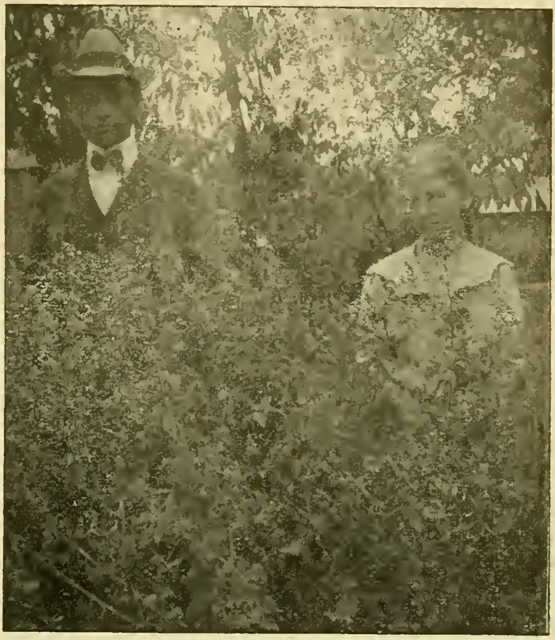


FIG. 1.—A LARGE CATNIP-PLANT AT DR. GANDY'S HOME APIARY.

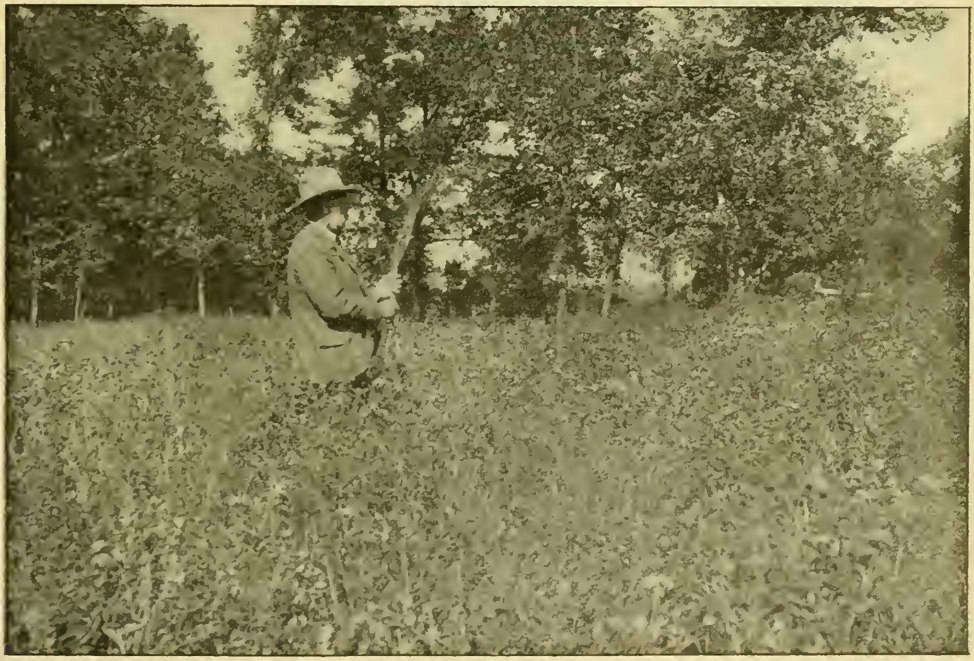


FIG. 2.—A FIELD OF BUCKBUSH SOWN ORIGINALLY BY DR. GANDY.

time of our visit, but the little white seed-balls or berries showed very distinctly.

In Fig. 2 we have a partial view of the field with Mr. E. Whitcomb standing in the middle ground. After having secured this shot I requested our jovial friend to step nearer while I took a closer view of him and the plant he had just pulled up by the roots.

In speaking of him, perhaps it is proper to remark that he is one of the leading and influential bee-keepers of Nebraska. As he lives at Friend, not far distant, he was invited by Mr. Hutchinson and myself to meet us at Dr. Gandy's. He is a Director of the N. B. K. A., and was President at the meeting held in Philadelphia. He is a genial dry joker, and I can almost see a smile on his face, notwithstanding he looks so sober. See how straight he stands, for he is an old soldier, and has been taught to stand erect.

Dr. Gandy did not regard buckbush as important a honey-plant as catnip; it was more easily propagated; in fact, when it once struck root it was almost impossible to eradicate it. For that reason it would not be advisable to sow the seed of this plant on any thing but waste land. He did not think that either plow or cultivator could tear it up, and he intimated that there was danger that it would spread like a noxious weed.

Continuing on our drive, and following the river, we came up to several large patches of wild cucumber. The vines had covered the entire bank in luxuriant profusion for a good distance each way. The large general view I took of it was unsatisfactory and hence is not reproduced; but the next shot, of the leaves and flowers, is shown in Fig. 4. The plant trailed all over the trees, along the rail fences—in fact, it covered every thing. Dr. Gandy regarded it as a very important honey-plant, and said if there were only more of it it would yield considerable honey. The specimens shown in the plate are about a third the natural size. Little white flowers surmount the ends of the stalks; and, like many another honey-plant, their chief attraction to insects is their sweetness.

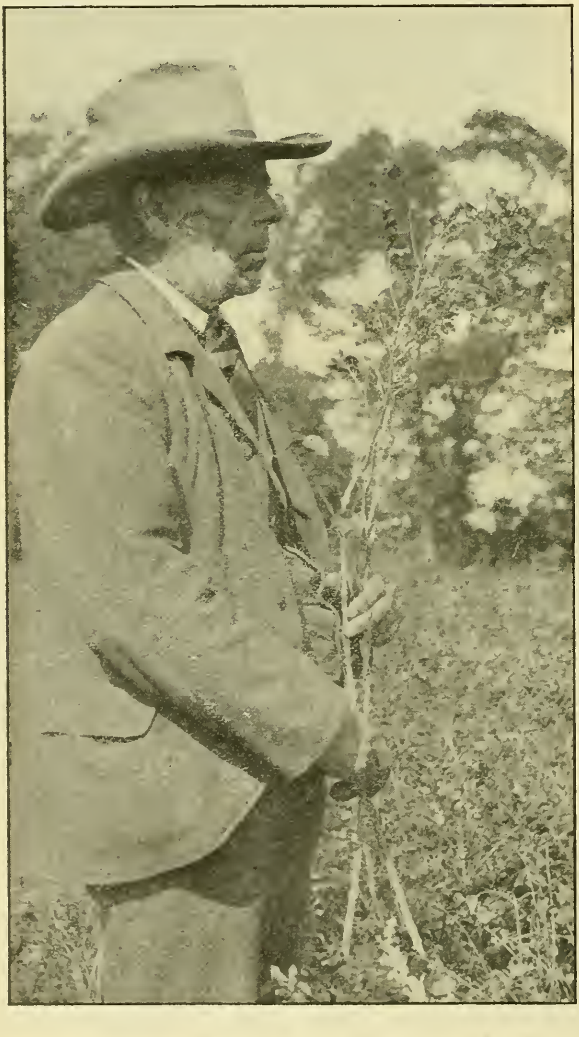


FIG. 3.—E. WHITCOMB, OF FRIEND, NEB., EXAMINING A STALK OF BUCKBUSH.

Wild cucumber is pretty well distributed, not only over all that part of Nebraska, but all over the United States. I have seen it everywhere, except, perhaps, in the far West and in the extreme South.

In Fig. 5 we have a very pretty field of heartsease. At the time of my visit, the plant was just in its prime. The bees were working busily on it, and the peculiar odor could be detected quite a distance away. Large fields of it in meadows and in cultivated ground were seen everywhere; and the beautiful combination of pink, and the deeper violet intersprinkled with pure white, made a very pretty effect. If, for example, Fig. 5 could be shown to you in the natural colors you would see something having a beautiful blend of color. While the smartweed of the East, a near relative. has dark-red bitter-smelling flowers. the heartsease has heads sometimes white, and sometimes sprinkled with white, pink, and violet, and some deep violet. I could not help noting that the heartsease in that part of the country seemed to be more vigorous in its growth than the same plant in Ohio and elsewhere. Indeed, it is a well-known fact that in Kansas and Nebraska it is one of the most important sources of honey. If I remember correctly, one man in Nebraska once reported a yield of 400 lbs. from two colonies, or an average yield of 200 lbs. from forty or sixty colonies. Mr. Whitcomb seemed to be decidedly of the opinion that the large amount of honey in the hives in Dr. Gandy's yard was largely from heartsease. The bees were piling into the hives, evidently loaded with nectar. He got down on his hands and knees, and placed his face near the entrance. "Yes," said he, rising, "that is heartsease, for it has the characteristic smell."

Dr. Gandy has several very fine bloodhounds. Some of the older dogs have been trained to service; and it was really interesting to see how they would take scent, track the individual, and then when they got "hot on the trail" would give that deep bay that would, I should say, make the one tracked think the very devil or a lot of them were after him.

Mr. Whitcomb took along two of the puppies, saying, with that dry smile of his, "Mrs. Whitcomb will probably raise a rumpus when she sees these pups." Later Mr. W. told me his wife had become reconciled to the pups, and that they were growing rapidly.

Heads of Grain from Different Fields

OFFENSIVE ODORS FROM THE HIVES IN THE FALL.

What is the cause of an extremely offensive odor, noticeable about bee-hives at times during the fall? Would any honey that chanced to be on in the supers ever become fit to eat, or could it be made so? Will you kindly give prevention and cure?

NELLIE G. BASSETT.

Mulberry Corners, O., Nov. 8.

[Very often in the fall of the year bees will gather honey from some fall flower which, before it is ripened, or is in the process of ripening, gives out a sort of sickening odor from the entrance of all hives in which such honey is stored. I know, for example, that unripe heartsease honey in a hive gives out a sickening smell, or at least it is sickening to me. There are others that at times give off similar odors. It is well known that the process of ripening

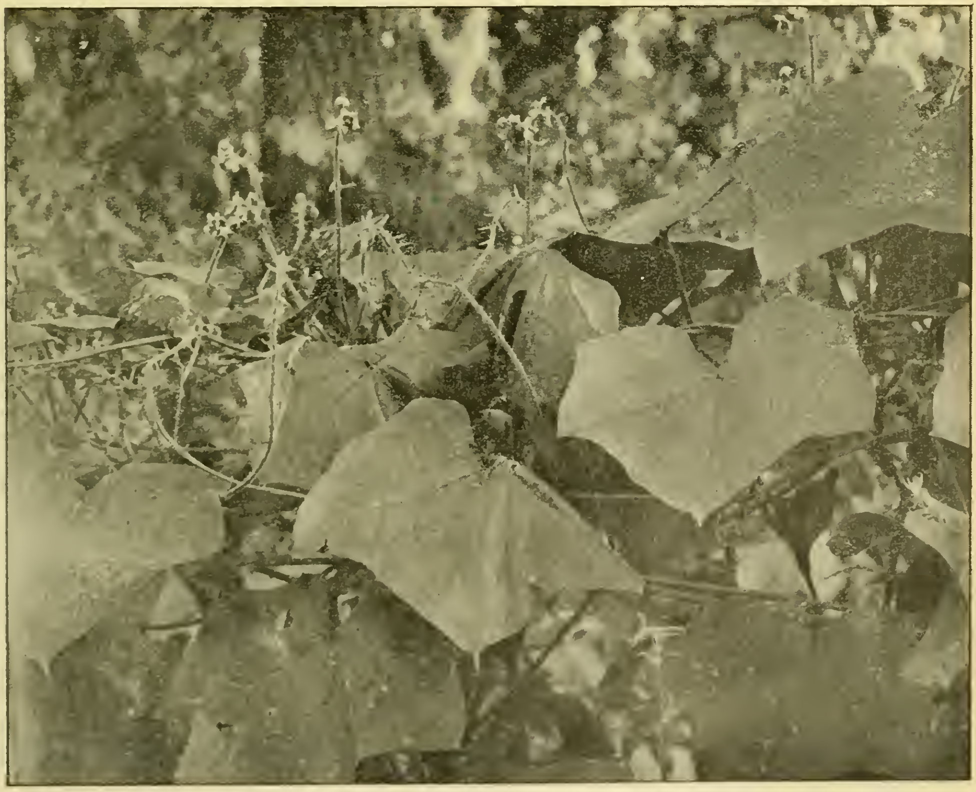


FIG. 4.—WILD CUCUMBER, SHOWING THE LEAVES AND BLOSSOMS (ONE-THIRD SIZE).

eliminates the bad taste of a good many different brands of honey. For example, the nectar from the flower of onions is very offensive; but after it has been thoroughly ripened by the bees the offensive odor is practically gone, and the honey is not unpleasant.—ED.]

NORTHERN ILLINOIS AS A HONEY LOCATION; WOULD IT PAY TO MOVE BEES THERE?

How does Northern Illinois rank as a honey-producing section? Do you think it a better place for producing honey than here in Vermont? I do not suspect it is a very good place; but would it pay to move about twenty colonies out there if I were going any way? The bees are in Simplicity hives, and in very good order. I am wintering there on their summer stands.

How early in the spring could they be moved? How should they be prepared for shipping? I suppose they would go by express. About what would be the rates from here to Chicago, and would I be allowed to go with them provided I pay my fare?

LEON E. HALL.

North Springfield, Vt., Nov. 29.

[Northern Illinois is no better for honey than your locality in Vermont, probably; but if you are going for other reasons we would advise you to sell your bees where they are, rather than pay express charges to move them to Illinois, for the charges will probably be as much as the bees are worth. A cheaper way would be to take the express charges and buy bees and put them in new hives after you get to your new location.

You can move bees at any time in the spring; in fact, they *can* be moved in the dead of winter; but when the air is very cold, combs are liable to be brittle. If the bees are to be moved it should be done when the temperature is above freezing.—ED.]

PAINTING HIVES A WARM COLOR.

In wintering bees with telescope covers why would it not be a good plan to paint the covers *black?* They would, if black, keep the hives warmer, during the day at least.

C. G. DICKSON.

Kensington, Md., Sept. 17.

[We have made it a rule to paint our winter cases with common Venetian red. A warm color may have the advantage of drawing enough heat from the sun at times to warm up the cluster in the hive, thus causing it to turn over and move on to more honey, and thus be prepared for the long cold snap. I have observed this: that sometimes colonies outdoors have starved to death because the cluster has consumed all the honey within three or four inches of it. If

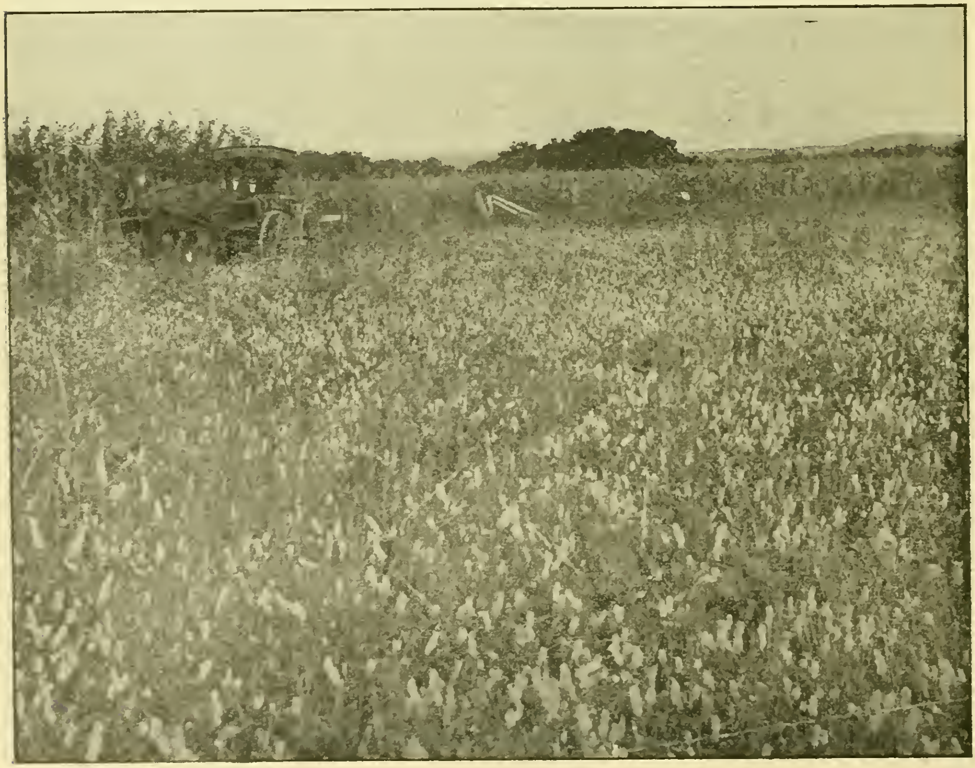


FIG. 5.—A FINE FIELD OF HEARTSEASE.

there had been a warm spell of even one day, this cluster would probably have moved over far enough to get over on to the honey, and all would have been well.—Ed.]

WHAT IS THE USUAL DEATH-RATE OF A COLONY IN WINTER?

I have just begun bee-keeping, and I have five stands in the old ten-frame Simplicity hive. There is an oilcloth spread over the brood-frames closely, and about a month ago I made sacks of burlap to fit the hives, filled these with chaff, and pressed them down closely on the oilcloth. The opening into the hives is just the same as it was in the summer. It seems to me that these bees ought to do well, but they are dying. Every day a dozen or more dead bees are rolled out of each hive. They are not dying for want of food, for there is more than 30 lbs. of honey in each hive. Is this only an ordinary death rate? If it is not, what is probably the cause? I also want to know which is best for bees—sweet or crimson clover. Do these clovers furnish hay and fertilize land like red clover?

E. L. Blake.

Grand Tower, Illinois, Dec. 10, 1902.

[The trouble is, your bees have hardly sufficient protection; that is to say, a cushion on top of the frames is not enough, although it is good so far as it goes. Your better way would be to put that colony in the cellar, provided you can darken it, and the temperature can be kept somewhere about 45 Fahr.—Ed.]

THE DANZ. HIVE USED IN MANAGING SHAKEN SWARMS.

Bees seldom make any surplus honey here in spring, but consume it all and breed in most prolific manner. I have about 50 colonies in 8 and 10 frame L. hives. I am going to get Danz. hives and set one in place of populous colony, after removing it, and then shake young bees from it and two others into the empty Danz. with *young* queen, and from these 3 L. hives shake out every 10 days all young bees into said Danz., use my whole 50 L. hives thus, 3 to 1, fed into the Danzies, and I believe I can make a lot of spring honey here and surprise the old bee-keepers who say it is useless to try till fall. If I fail there will be no loss, as they do nothing but breed as it is in L. hives, in the usual way of working; but I feel confident they will pile a lot of honey in sections when treated that way. That will be "shaking" in earnest, and then following it up with plenty of re-enforcements. I don't need any extracting-supers to get them above when I do that, as I found last fall by driving three box-hive colonies into one Danz. which worked finely, except that the colonies began to run down too quickly, but the young bees continually shaken from 3 L. hives into one Danz. will remedy that. In fall I want extracting-supers to start them above; and then if strong colonies, and *plenty of honey*, no more to do.

Bees never went into winter better than ours here this time. Brood-chambers are *full* of finest quality of honey; very late breeding, and hives full of young bees. My bees were bringing in pollen yesterday, and I presume they are breeding some yet. In this locality I disbelieve in any kind of upper-story fixing, but back my judgment with risk of bees, and leave all mine with nothing above brood-chamber but the ventilated gable top. I have not opened one of them since Oct. 20, which gives time for them to seal up every crevice before severe weather. With plenty of honey and young bees, that is all I ask for. In shallow hives it may be different.

Paducah, Ky., Nov. 2. W. M. Janes.

RAPID-GROWING TREES FOR SHADE TO BEE-HIVES.

Will you kindly tell me what variety of tree to plant or set out that will give a shade to the hives in two years' time—some quick-growing kind that you are familiar with? They must grow tall enough to clear a man's head with a globe bee-veil on.

Vorden, Cal., Dec. 8. Albert Lane.

[The eucalyptus of your State and the cottonwood of Arizona are both very rapid-growing trees. If I remember correctly I saw some cottonwoods in California. There is a species of willow there that is also a rapid grower. Almost any nurseryman in your vicinity could give you the desired information.—Ed.]

A REASON FOR BEES NOT CAPPING OVER HONEY AT TIMES; CLOVERS AS HONEY-PLANTS.

Please tell Dr. Miller the seasons have already changed. Last year was very dry, this season extremely wet, and this was a poor year for the bees. Some of them are short of winter stores. Some of them have the most uncapped honey in combs I ever saw in the fall. I think the cause of this was the long-continued fall flow of nectar in the different clovers, but not enough to produce wax; consequently the honey stored was left uncapped. Louis Hocket.

Fairmount, Ind., Nov. 26.

A CARD FROM PROF. H. W. WILEY.

Mr. Editor.—I appreciate the great fight you have made for the purity of honey. I am sure that every believer in the principle of pure food feels grateful for the work which you have done in that line. While the evil of honey adulteration is not entirely eradicated, it is certainly not so rampant as it was before the fight against it was made. I shall not be willing to lay down my arms in this matter until national and State pure-food laws together completely eradicate the great evil which has so long been a menace to the prosperity of the honey industry. H. W. Wiley,

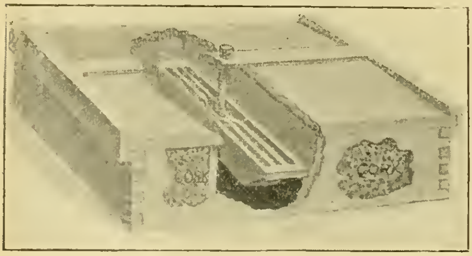
Chief of Bureau of Chemistry.

Washington, D. C., November 24.

THE FERRY FEEDER AND COVER COMBINED.

Bee-keepers have had in time past considerable trouble in spring feeding, also stimulating small colonies, disturbing the bees, getting them cross, as well as being badly stung, taking off covers, killing them, and getting them excited, causing them to consume more honey while adjusting the feeder. These inconveniences and trouble have caused me to invent a feeder that is a combination of a winter cover and feeder; can also be left on as a summer cover, and much better than the thin cover; as it will keep the sun from the top of the hive, it can be used as a cover at all times, and is always ready for a feeder or stimulator at any season of the year, and will not disturb the bees, and there is no danger of being stung. I will give you a description of the Ferry feeder.

Take a regular super which is 5 inches deep, and in the center put a Simplicity feeder, cutting into the sides of the super so the ends of said feeder will sit in, so the bottom of it will be about ½ inch from the bottom of the super. On both sides of the Simplicity feeder put a partition ½ inch from the feeder the width of the super, also a bottom, and fill in these partitions, both sides of the feeder, with ground cork, chaff, or leaves, also a cover over the Simplicity feeder, leaving 1½ inch space on top for bees to go into the feeder above this, and fill in with cork, chaff, or leaves. Through the top cover on the super have a hole having a pipe extending into the Simplicity feeder, through which the feed can be put, honey or syrup (sugar and water), and in this pipe you put a cork. Your yard being fitted up with the Ferry feeders, you require little feeding or stimulating. Take your pail of honey or syrup, a dipper holding ½ pint, and a funnel, and you can go over a yard of 100 colonies in a very short time. Remove the cork from the pipe, put in the funnel, put in a dipper of feed, and so on through the yard. You little know what a help this is until you try it. If the stock of honey is getting low it is important.



In the spring, even if your bees have plenty of honey, it is a stimulant, a change of food, and gives the bees new life, and they will work with more energy and vim. You may say it is a little expensive, but it is done only once, and you always have them. Your bees will make more honey the first season than the cost of this "Ferry Feeder." I will send you a drawing of the "Ferry Feeder" and cover combined.

H. S. FERRY.

Mount Vernon, N. Y., Oct. 29.

[Your idea is all right, but, as you say, it is a little expensive. From my standpoint, however, a Doolittle division-board feeder, costing less than a fourth as much as the one you describe, would secure to you all the advantages you get in the feeder illustrated. It has the feature of warmth; and being in the form of a division-board it can be inserted right down in the brood-nest where there is the greatest heat; and, moreover, it will hold about three times the amount of feed of the ordinary Simplicity trough.—ED.]

ARE QUEENS FOUND ON THE OUTSIDE OF THE HIVE IN A CLUSTER OF BEES AFTER A SWARM HAS ISSUED?

On page 800, speaking of clipped queens, the editor says, "The queens coming out with swarms should generally be found in front of the hive with a cluster of bees." Dr. Miller's Straw, page 845, commenting says, "May be she *should*, but she isn't, at least not in this locality." The editor's footnote still insists on the correctness of his statement. My experience of nearly 40 years, in Indiana and California, agrees with Dr. Miller. Not more than one case in fifty have I ever found a cluster of bees with the queen. She either goes back into the hive, or is found crawling around by herself. The text-books say the old queen leads the swarm. In my experience the clipped queen is among the last bees to leave the hive, and sometimes does not come out at all, while virgin queens are usually among the first of the swarm. Writers generally say a queen on the combs may be found with a body-guard following her, making love to her, so to speak; and the text-books picture her thus attended by her loyal body-guard. This is not in accordance with my observation. The queen is rarely found thus, except when she is first mated, and has not yet disposed of the drone appendage, or when she is old, and her abdomen extended by disease or other cause. In these two cases the bees will frequently cluster around her, apparently trying to remove the difficulty. Is this the experience of others? If I am not mistaken the editor of GLEANINGS and many of his correspondents advocate raising queens from cells where the bees are trying to supersede their queen. I do not think as good queens can be raised from eggs laid by a sick queen as can be from a healthy and vigorous layer; and bees rarely supersede before the queen shows signs of failing, and sometimes hold to the old one until there is no brood left to raise a young one from.

Now, Mr. Editor, won't you "look a leedle out" next year and see if I am not correct? Don't follow the old ideas just because such eminent men as Langstoth, Quinby, and others taught them. All honor to these great men for the light they have given us; but they were human beings, and the human family may err, even the wisest of them. Delos Wood.

Santa Barbara, Cal.

[You and Dr. Miller may be right; but certain it is that many clipped queens I have found near the entrance of the hives, from colonies that had just cast a swarm have had a cluster of bees around them. It may be that I happened on to the "exceptions that prove the rule."

You say the text-books say the old queen leaves with the swarm. The A B C has never said this. Indeed, if you will read the two first paragraphs on the subject of swarming, in either the old or new editions, you will find that it says the queen is among the *last* to leave the hive. I do not know of any modern text-books that have taught that the queen was the *first* to lead out.

Again, you say that writers generally say a queen on the combs may be found with a body-guard following her. Here again you have it a little too strong. I don't know that there is any such statement in the A B C, but it does state that the bees will very often stand about the queen. I have watched the queen by the hour, and there is apt to be a circle around her. She will push herself among the bees, and they will back out of the way; and if she stands still they will circle around her. But in opening the hive it is not my practice to look for a circle around the queen, for there will be no circles of bees just then. The queen is apt to be somewhat frightened, and the bees more or less disturbed; but if the frame be held in the hand for a few minutes she regains her self-possession, and then the bees will gradually circle around her if she stands still — at least, these are my own personal observations.

Yes, I do advocate raising queens from cells where the bees are trying to supersede their queen; but here again you have misread. The supersedure queens are not used for supplying the cells with eggs or larvæ. Cells grafted from a choice breeder are put into a hive where the bees are trying to supersede the queen, because those bees will accept almost any thing in the way of cells given.

I do not know of any author or writer who advocates using the eggs of a failing or supersedure queen for grafting his cells. Haven't you misread or hastily read some of the authors and writers?—Ed.]

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1. Please state the value of *Catalpa speciosa* as a honey-producer. I have set out a number of trees. I notice Frank Benton gives it in Honey-bee, pp. 67, 68, and wish to know if others have found it of value.

2. Also the Russian mulberry.

3. Would *Echium vulgare* (viper's bugloss, or blueweed) be of value as a honey-plant to naturalize in waste places? (Noted in F. Benton's Honey-bee, Plate VIII., opposite page 64.)

4. Is asparagus of value as a producer of pollen or nectar? Wilfred Allen.

Windsor, Ct., Oct. 2.

[This was sent to Prof. Benton, Washington, D. C., who replies:]

1. All of the catalpas are visited freely by bees for honey. I am unable to say whether a preference is given to one species or the other. *Catalpa speciosa*, being the hardy catalpa, is receiving greater attention as a cultivated tree than the other catalpas, and no doubt will in the future be of some value to bee-keepers.

2. I have never seen bees visiting mulberry-trees of any kind. It is possible they might work on the ripe fruits under some conditions, although I have not observed this. Certainly the blossoms are not attractive to them.

3. The viper's bugloss, or blueweed (*Echium vulgare*), I do not consider a pest under a good system of cultivation; and as it is quite tenacious of life it can be readily naturalized by roadsides and in waste fields. It is true that it sometimes makes its way into meadows where the grass has been left to stand long; but, as indicated above, with a proper rotation of crops, since plowing wholly eradicates it, it is not to be believed that it would be a serious pest. The plant remains in blossom for some weeks, beginning in June and lasting well through July, in middle latitudes. The honey is of most excellent quality, clear and white, with good body, resembling in the main white clover honey.

4. Common garden asparagus, when permitted to blossom, is eagerly visited by the bees for its honey. I do not recollect whether pollen is collected or not. When grown in large areas it may be regarded as a plant of some importance, especially as it comes in midsummer, when there is often a dearth of other honey-producing plants. Frank Benton.

Is the carpet grass a forage-plant for domestic animals, or is it obnoxious to them? Alonzo Knight.

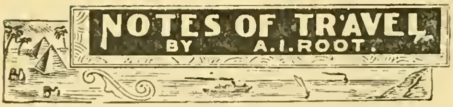
Plain City, Utah, Nov. 4.

[I do not know, but I think carpet grass is not a forage-plant; neither is it particular obnoxious to stock; but my belief is that they would eat almost any thing else in preference.—Ed.]

Is the wax that comes with the honey digestible? Chas. H. Issel.

Glenville, O., Nov. 18.

[Probably not; but I never heard that the wax eaten from comb honey did any particular harm. It would simply pass through the alimentary canal, neither aiding nor retarding assimilation or digestion. Of course, if too much wax were eaten it might do harm.—Ed.]



NOTES OF TRAVEL

BY A. I. ROOT.

Neither pray I for these alone, but for them also which shall believe on me through their word, that they all may be one.- John 17 : 20.

Now this I say, that every one of you saith, I am of Paul; and I of Apollos; and I of Cephas; and I of Christ. Is Christ divided? was Paul crucified for you? —I. Cor. 1 : 12, 13.

Husbands, love your wives, even as Christ loved the church, and gave himself for it; that he might present it to himself a glorious church, not having spot or wrinkle, or any such thing; but that it should be holy and without blemish.—Eph. 5 : 25, 27.

OFF TO CUBA.*

About the holidays the boys suggested I should make a trip to Cuba; but when I expressed a fear that I might get the cholera, or get swallowed up in an earthquake, Mr. Boyden (our younger son-in-law) said they didn't have either at all; and, furthermore, they didn't have even *mosquitoes*. Mr. B. has made two trips to Cuba, and has been mainly instrumental in working up the large trade we have there.

I left home the day after Christmas, and have so far had some very "pleasant surprises" on the way. I want to tell you about some of them along in the line of recent conveniences for the traveler. For just $95.55 the Louisville & Nashville Railroad agreed to take me to Cuba, bring me back when ready, and to be reasonably careful that I should not get lost or get into trouble. On account of the cold wave and snowstorm (didn't the Weather Bureau foretell it *well* all over the country?) our train was two hours and a half late in getting into Cincinnati; but a nice young L. & N. chap picked me out and placed me on my reserved sleeper, even though he had to sit up until after midnight to do it. At Nashville the conductor said I would have to change cars; but before the train stopped, a very good-looking fellow in uniform told me to stay right in my seat until he came after me, saying he would *personally* place me on the right train and in the right car.

Of course, this was all plain; but when every one had left the car, and they began hauling it (empty) to another part of the city, I began to fear this fellow who seemed to be "boss of the gang" had forgotten me in spite of his good looks; but a porter I got sight of (the porters are nice fellows too) said:

"Oh! you just wait *one second more* and he will be after you all right."

The "one second" proved to be about 20 minutes; but they finally pushed the car, with only myself and the porter in it, right up against the car I was to take. Just one thing more:

The railroad that runs into Cincinnati wanted a *dollar* for supper, so I didn't have any; but next day the L. & N. gave me *three* very nice meals in a very pretty dining-car, *nicely served*, for just about an even dollar. Whenever I have paid a dollar for a single meal because I could not well help it, it has usually proved to be a burden on my *conscience*, and on my digestive apparatus also.

Our train was due at Jacksonville early in the morning, and I had planned not to travel on Sunday; but we didn't get in till just about time for church and Sunday-school. When I let any thing hinder me from attending Sunday worship I feel as guilty (or more so) as when I pay a dollar for a single meal. I asked the trolley-car conductor if he could take me near a Congregational church; but he said he did not think there was any such. Their church burned down at the big fire. I knew this wasn't true; but I did not want to be seen hunting around just at church time for my own denomination.

Now, dear friends, I want you to listen to what happened. It has often seemed as if God so plans, in his loving care over me, to *try me* every little while. Was it not so in this case? I told the conductor that, as it was church time already, he might let me off as near as he could to *any* church.

"All right; I will take you within two blocks of a new Methodist church."

On the way I considered how gladly the Methodists have always united with us in temperance and other work, and felt quite glad to be with them. These pleasant thoughts were interrupted by finding I had blundered (as usual). A couple of boys said, "There a'n't any Methodist church about here; but right over there is a new *Baptist* church, and they are just commencing Sunday-school."

While I turned my steps I turned my reflections also to the fact that my father and mother were both Baptists, and very soon I was not only reconciled but happy to think of worshiping with the Baptist people. We had a very nice Sunday-school; and, by the way, could anybody tell from *any* Sunday-school what church it was? During the intermission a good brother informed me the *boys* had made a mistake, and that the beautiful new edifice we were standing in was a *Presbyterian* church. Then I considered that it has often been said there is very little difference between Congregationalists and Presbyterians any way, except that the former are not quite so stiff and formal, and perhaps aristocratic, as the latter. I very soon began to feel quite at home with these good people. Now, friends, this is not quite all of the test. A little later it was announced that the regular pastor was obliged to be absent, and that the Rev. Dr. Gale, a *Congregational* minister, would preach to us. The events of the morning, the mistakes and blunders of my own and others, had taken the measure of the attitude of my heart toward all these branches of God's worshipers. But even this was not all of the lessons I was to

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[*] As Travels and Homes will necessarily run together more or less, I shall not, for the present, attempt to keep them separate.

learn. After the meeting the good brother I talked with said in substance:

"Mr. Root, before the fire there were two churches — a *North* and a South Presbyterian. Both were planning new buildings; in fact, a great part of the money was in the banks, and both buildings were insured. After the fire, something or somebody suggested *uniting*, and then everybody was astonished to find almost no objection *anywhere*. I told Mrs. Root I believed God called me to take this trip, or, rather, that he had something for me to do away from home, although I had no idea what it was. Is it possible he wishes me to use my influence and ability to bring about a closer unity between the churches? He *knows* how my heart is in it. The temperance work, the Endeavor work, the Y. M. C. A. work, the W. C. T. U. work, and many other things are leading that way. United, we stand; but divided, we fall.

The next day a new friend who has been reading the Home Papers, Mrs. M. Lewis, of New Smyrna, unconsciously turned light on this matter from *another* standpoint. She very kindly volunteered to go with me a short distance to point out a crooked path to another bee-keeper. On the way we passed near a colored settlement. She said something like this:

"Mr. Root, that our colored friends may not be behind the whites you will notice they have a good many churches for so small a town. They can't get along without *two* kinds of Methodists and *two* kinds of Baptists, and so they are trying to keep up *four* churches and *four* ministers out of their scanty earnings."

May God help us to do better, if it is indeed true that these poor friends are looking to us to set them a pattern!

For whom Christ died.—I. COR. 8:11.

Our steamer came in sight of Havana about daylight, January 2. She anchored right close to the wreck of the Maine. I was a stranger in a strange land; not a soul around me could understand our language. As I looked at the rusting relic of the recent awful tragedy that stirred the whole world, there was a tendency to uncharitable feelings toward the new and strange people. But about this time something suggested the words at the head of this paper, "for whom Christ died." A tug came out to take us to the dock. Our people sent a letter, asking our agent at Havana, Mr. F. H. de Beche, to meet me at the landing; but I arrived just before the letter did.

While I was on the tug a nice-looking young fellow approched, and, touching his hat, inquired in very good English if this was Mr. Root. I assented, and inquired if he was sent to look after me.

"Mr. Root, no one sent me; but I know Mr. de Beche, and something of the business he is doing with your company; and when I saw your name on your bycicle-trunk I thought perhaps I could aid you."

He assisted me in having my valise pass the custom-house examiners, went with me and hunted up Mr. de Beche, and wouldn't accept a cent as pay for his time. As Mr. de Beche was busy for a good part of the day I begged to be allowed to run over the city a good deal alone. I wanted to take my own time in studying humanity in this, to me, new world.

Havana has a population of toward a quarter of a million, and this vast multitude are, as it seemed to me, out of doors the greater part of the time the year round. The shops and stores are mostly out of doors; the porches or awnings extend out so far it makes the street exceedingly narrow. At first it seemed to me they were uncomfortably narrow; but after a little I found some advantages in the narrow streets. For instance, it makes the shops cool and shady—the more so as the buildings are all of stone, even to the roofs and ceilings. Like the coral rock in Bermuda, when first quarried it can be easily sawed into stone slabs, or, you might almost say, "boards." I found people of all nationalities side by side, on the most friendly terms — Spanish, Negro, Chinese, and a sprinkling of Americans, but no one apparently above or much above the others. They seem to prefer to be called Cubans instead of singling out the different races.

Until recently, *getting married* has been so expensive that a great many heads of families have never been married at all legally; and, although separations are rare (thank God), this easy way of starting "homes" has perhaps tended much toward amalgamation. In the city everybody is fairly well dressed, and, as a rule, the people are clean. They have a great abundance of very pure *spring* water. A part of the stores advertise that English is spoken; but out in the open street, perhaps not one in a hundred speaks anything but Spanish. As I looked them over I kept saying in my mind, "For whom Christ died;" and as a new love and compassion filled my heart I became very happy. I believe God called me to that trip up in Northern Michigan; I believe he was pleased to see me plead with them for the upbuilding of that scattered little church. I did not know *why* his voice in my heart seemed to call me toward Cuba; but when the beautiful thought of our text came into my mind, and began to unfold, "For whom Christ died," then I began to comprehend a little. I do not know what I am to do or how I am to labor; but I feel strangely called toward these mixed races of people. In Mr. de Beche's office there is a fine large phonograph for sale. It is kept going a good deal to show people how it can talk and sing. During the day it commenced playing "Dixie's Land." A spindling colored juvenile listened awhile. The melody touched a responsive chord; his arms and legs began to keep time to the music, and then he danced as only children of his race *can* dance. It was an innocent, childlike dance, and I thought of what lay before him in the life God has given him to live for good or evil. Then came the thought, "For whom Christ died."

I took a ride on the electric cars, two or three miles out into the suburbs. I wandered around among the fine residences with their beautiful tropical gardens adjoining. Here we find all the rare and costly greenhouse plants of the North in their wild and untrameled beauty. Crotons grew like trees, with a variety and brilliancy of color far ahead of any thing produced in the greenhouse. Hibiscus and camelias, with blossoms larger and of greater variety, almost startled one as he suddenly comes upon them. To crown all, I came across a Bougainvillea that covered a summer-house with such a mass of bewitching and bewildering color I burst out with an exclamation of delight.

Bright colors seem to belong to Cuba. The stone dwellings are painted or whitewashed with various bright tints. You look through the green foliage, and see what appears to be a patch of blue sky, but find out it is the wall of a house so near the color of the sky you can't tell the difference. The colored girls and women delight in colors; and when they "slick up" in the afternoon, and come out on the street in their soft "summer drapery," rivaling in color the bright tropical flowers, one may smile at their efforts to follow their whiter sisters and look attractive; but when he reflects that it is such as they "for whom Christ died" I hope he breathes a prayer that they too may be led in wisdom's ways.

When I started on my trip Mr. Boyden gave me a card telling me where to go in Havana to find Mr. de Beche. He had it "Obispo St. No. 15." When I started to go over the city Mr. de Beche also gave me a card. I stuck both in my pocket, thinking they were, of course, the same. When I got lost (as I felt sure I would) I showed my card and was told where to go, and found my place very quickly.

In the afternoon I had an appointment to meet Mr. Fred Craycraft at 5 o'clock, at the same place. About half-past four I went to the place, "Obispo 15," but the street was changed — nothing familiar. It made me think of a bee when somebody has carried his hive away. There I was, a stranger in a strange city, with the only human being I knew "spirited away," and, worst of all, he had taken his business house and the *whole street*. I thought of the Arabian Nights. I applied to a policeman. He very kindly found somebody who could talk English. I showed my card, and they said my card was not right; but when I told them I was there *since noon* at "Obispo 15," and my friend and his store were there, they were greatly puzzled. Those who knew the city were called in. They looked at me to see if I was sane, and looked at my card. While I was considerably worried, it made my heart glad to see half a dozen men stop their own business to bother with a stranger. Not one turned away until they got me out of trouble. Finally one of them said:

"Why, *that* place is *O'Reily* St., not Obispo."

Then I found Mr. Boyden had made a mistake in the street.

On my former trips I had referred to the *printed* card without noticing my written address was not the same; but the accident gave me an insight into and an acquaintance with these people I should not have gotten otherwise. They seemed worried and troubled because they could not help me out of my dilemma.

While on the cars coming out to our apiary a very pretty young girl got on the train and sat in front of me. Over her jet-black hair was a head dress of some kind of lace. Her soft dreamy eyes had an innocent, pure, childlike look that made one turn to her again and again. She made me think of the tropical flowers I have been trying to describe. "Surely," said I to myself, "this rare picture of feminine loveliness *must be* as pure and good as she seems." A little later the fumes of a cigarette came across my face. A hand as beautiful as the face of the owner lay on the sill of the open window, and, as sure as you live, the cigarette that annoyed me rested carelessly between those dainty fingers. Again my little text rang out sharp and clear, "For whom Christ died."

I am writing on a little stand out in the open air this 7th day of January. Our Cuban neighbors are curious about our little city of white bee-hives. A little girl of eight has just been here. She and I are friends already. She can read and write Spanish, but not English. We are teaching *each other*. A bright young man comes to see us nearly every day. He knows but two words of English, "good by." We all have a big time laughing when he comes, shakes hands all around, and says, clear and plain, "good by," when he means "good morning," or "how do you do?" I am *sure* I think I *can not* be mistaken in feeling that these people, these "for whom Christ died," are ready, and would gladly listen to the message the dear Savior bade us carry to them. "Go ye into all the world, and preach the gospel to every creature." You know, friends, something about how Bro. Reed and I labored last summer in trying to build up that broken-down church. I am not done with it yet, but God seems to have called me to a new field; and as I look it over, the word of the Savior comes into my mind.

> "Woe unto thee, Chorazin! woe unto thee, Bethsaida! for if the mighty works, which were done in you, had been done in Tyre and Sidon, they would have repented long ago in sackcloth and and ashes.—Matt. 11:21.

I do not know how much missionary work has been done in Cuba; but I am impressed that these people are ripe for a great harvest. I am told that there is a Baptist church started at Pinar del Rio, 20 miles west of here. The missionary will, of course, have to learn Spanish. Almost none of these people speak English. Schools are started but as yet they teach only Spanish.

As I look over this land of perpetual summer, and get acquainted with these mixed races, "*for whom Christ died*," my heart fairly bounds at the thought of teaching these people, young and old, of that dear Savior and his *wondrous* love for us all, without any distinction of race, station, or color.

HIGH PRESSURE GARDENING BY A. I. ROOT.

WINTER RHUBARB — GROWING IT IN THE DARK.

This is a new line of high-pressure gardening that does not seem to be very much understood. One of the clearest and best articles in regard to the whole matter, I find in the *Michigan Farmer* for Nov. 29. It accords with my own experience so exactly I thought fit to give it, slightly abbreviated, a place here.

Within the past few years the dark forcing process has assumed such proportions, and by methods so easily understood, and so inexpensive as to application, that there is no longer any necessity for the expensive systems formerly in use. Then, too, the quality of rhubarb grown in the dark is so far superior to that grown under glass, and the yield is so much larger, that the advantages of the new over the older practices are placed clear beyond the region of debate. From the financial view-point, it offers the very best of inducements, as the crop is grown and placed upon the market in midwinter when no other garden crop can be grown except by the expensive methods of the greenhouse. So, to the gardeners located within reach of markets, a winter enterprise is opened up which offers very remunerative returns.

Of this phase I shall not speak further except to call attention to a commercial cellar in actual operation. When the roots first put in were exhausted, the cellar was again filled and two full crops were grown during the winter, which brought in the market upward of $160 from a space 12x60 feet in size.

A WINTER LUXURY.

The particular features which I wish to emphasize are the ease with which every family may grow a genuine winter luxury, and from December un il April may have a daily supply, and almost for the asking.

HOW TO GROW IT.

The only conditions for entire success are strong vigorous roots two years old and upward, and a warm corner in the cellar where the light can be entirely shut out. This last condition must be followed to the letter, as it must have entire darkness, in so far as daylight is concerned, to reach perfection. As to preparing the roots, dig them out any time before the ground freezes too solidly to prevent digging. Leave as much soil adhering as possible, and allow them to freeze thoroughly, the harder the better. Do not neglect the freezing through and through, else you will meet with disappointment. After the clumps are frozen, trim them up evenly, removing all the protruding prongs so that they may be set closely together. They are now ready for forcing. Set them snugly together on the cellar bottom (either cement or earth floor), and fill up the spaces with loose soil. If the crowns are covered 5 or 6 inches deep it will do no harm, and is just as good; but they should be filled up level at least. Now tack an old carpet or heavy blanket to the ceiling above, allowing it to fall clear to the cellar bottom and entirely surround the bed. The cellar wall will form one side of the enclosure, or two sides, provided the bed is in the corner. The enclosing with the carpet is simply to shut out the light and retain the heat, which may be supplied with a lamp or lantern. There must of course, be some artificial heat to induce growth and this is secured by setting the lamp or lantern right down among the clumps. As stated above, the daylight must be rigidly shut out; but the lamp light will do no harm, only the chimney or lantern globe should be smoked so that even that light will be subdued. The rhubarb is very accommodating as to temperature; and if the lights go out and the heat goes down it will do no harm. The temperature may vary from 50 to 85 or 90 degrees, and changes will do the stalks no harm. The higher temperatures induce quicker growth and higher-colored stalks, while a lower degree will give a heavier yield with less brilliant color. If the work is well done, the stalks will be so crisp and brittle that they will almost break of their own weight, and will be of the most beautiful color imaginable. There will be but very little leaf-growth, and that of the brightest lemon color, and the stalks as a whole will be the most beautiful vegetable product that grows out of the ground.

AN EASIER WAY.

Now to make the work still more easy and general of application, any corner where frost and light can be successfully barred out will answer every purpose. Use a corner of a shed, a store room in the house, and even a barrel or large box in the kitchen by the range or cook stove will make a nice place. It may be grown anywhere, as there is no objectionable odor; and if grown in the kitchen it saves going down cellar to pick it. The facts are, it is one of the most dainty and wholesome winter vegetables grown, and the work is so easy and simple that every family may and ought to grow at least a generous table supply. Any variety will answer; and after the roots are once put in, they require no attention whatever except to keep the heat going, a part of the time at least. An occasional watering is beneficial; but if the roots were well supplied with frozen soil when put in, the moisture from the thawing will nearly or quite carry them through. Better results will, of course, be obtained by keeping them fairly well moist. J. E. MORSE.

Wayne Co., Mich.

THE RESULT OF THE LAST ELECTION.

THE following is the result of the last election, held in December, for the election of officers for the National Bee-keepers' Association, and about which so much trouble has been raised:

Having received from El is E. Mason, Secretary of the National Bee-keepers' Association, the results of the December election for General Manager and three Directors, I make the following announcements:

Whole number of votes cast for General Manager, 610 of which N. E. France received 489; E T. Abbott 117; scattering, 4. Mr. N. E. France is hereby declared elected General Manager.

Whole number of votes cast for Directors, 567, Mr. G. M. Doolittle receiving 364; W. F. Marks 262; T. G. Newman 249; Udo Toepperwein 149; Wm. A. Selser 105; Wm. McEvoy 86; G. W. VanGundy 74. The rest of the votes are scattered among 120 members, no one of them receiving more than 32 votes. Mr. G. M. Doolittle, having received a majority vote, is hereby declared elected Director No other candidate for Director having received a majority vote, as is required by the constitution, no other is elected. The constitution says that the Directors' term of office "shall be four years, or until their successors shall be elected and qualified;" thus Mr. W. F. Marks and Mr. Thos. G. Newman retain their offices, at least for the present.

W. Z. HUTCHINSON,
President National Bee-keepers' Association.

I do not understand that this announcement prevents the calling of a new election if the Board should so order after it has had time to go over the situation.

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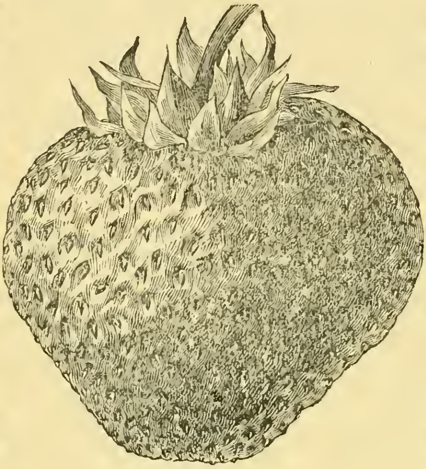
which will carry your address for

Great Crops of

Strawberries

and How to Grow Them



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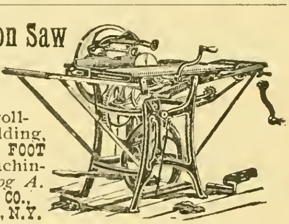

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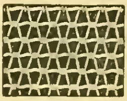

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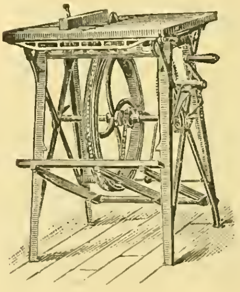

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now in the hands of the printer, tells how to rear

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and tells the cause of and remedy for injury in shipment; how they may be **Directly introduced** with positively no risk of loss or injury, and much other valuable information. It describes the **Twentieth Century**

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Laws' stock is being sold for breeders all over the world. Why? Because it is the best to be had.

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about his business. No saying is truer than "Knowledge is power." Many bee-keepers have failed who might have succeeded, and many who have succeeded might have enjoyed greater success had they possessed all of the knowledge it would have been possible for them to secure concerning their business. When I was a bee-keeper, before I began publishing the REVIEW, I found it to my interest to read all o the bee-journals published. Time and again a single item was worth dollars to me. I doubt if it would be possible for a practical bee-keeper to read the BEE-KEEPERS' REVIEW one year without gaining information worth many times its cost; and, just *at present*, a new subscriber can get two years for the price of one. That is, to any one who sends $1.00 for the present year, twelve back numbers will be sent free. Most of them, but not all, will be 1902 numbers. 24 numbers for only $1.00.

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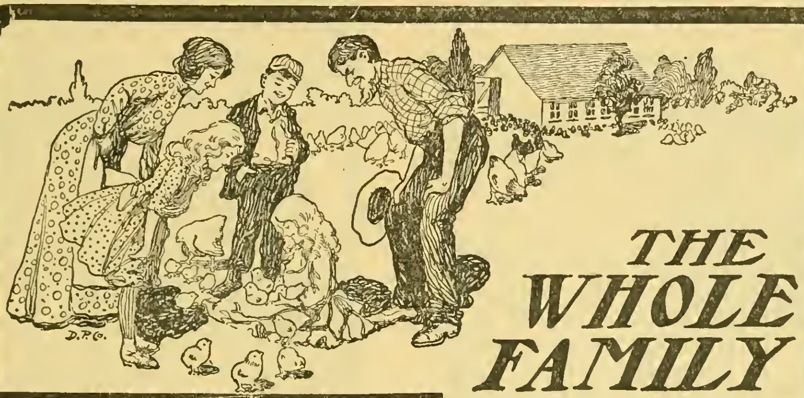

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teaches how to make poultry pay, makes experts of beginners, and turns loss to profit. We will send it to you for a whole year, twice a month, 24 times, for 50 cents. We want agents too. Good pay, big premiums or cash. Send for a free sample copy.

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He said the poultry papers
Were filled up full of lies.
He said his wife kept chickens,
And that they didn't pay,
They had enough to eat he said—
And yet they wouldn't lay.

One time COMMERCIAL POULTRY
Was sent him by a friend,
He read and practiced what it taught—
His troubles had an end.
Now he and his whole family
Are happy as can be.
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Easy Running Because Ball-Bearing.

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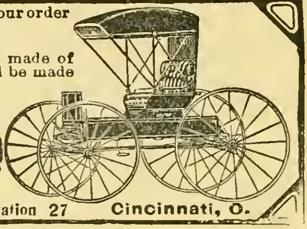

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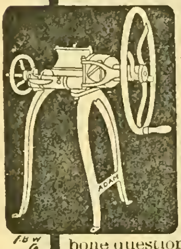

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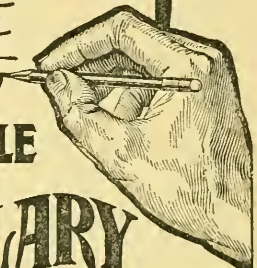

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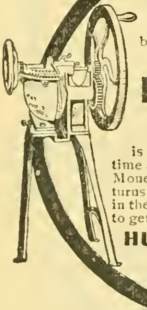

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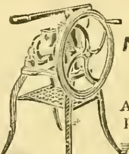

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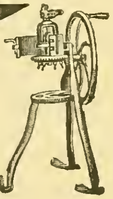

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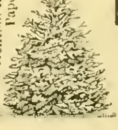

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Runs easiest. All improvements. Catalogue free.
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with new automatic, direct action regulator, is the best hatcher on earth. Sold at fair price on
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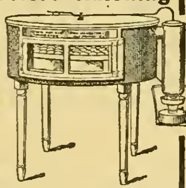
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R. C. Bauerminster, Norwood, Minn., got 493 chicks from 503 eggs. He followed directions, the machine did the work, because it was built on right principles and by good workmen. The **IOWA** has fiber-board case, does not shrink, swell, warp or crack. Regulation and ventilation perfect. Our free book gives more testimonials and full particulars. Everything about incubation free.
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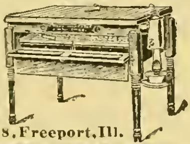

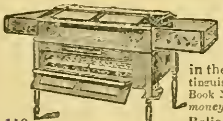
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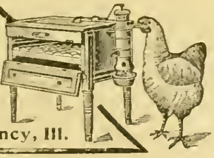

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The Royal Incubator
is so good and works so well that we don't ask you to buy it before you try it. Entirely automatic: certain in results. May we send you one on trial? Catalogue free.
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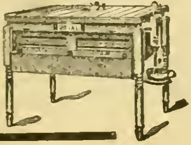

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the kind that brings big hatches and does not go to pieces from heat and moisture. The best built machines on the market. Perfect system of regulation. Send 6 cents in stamps to cover actual cost of mailing for Incubator and Poultry Books. Standard Poultry and Poultry Supplies Books in five different languages. Write for them to-day.
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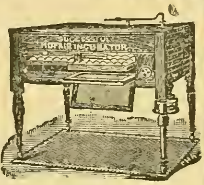

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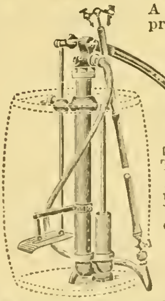
THE ECLIPSE
is a good pump. As practical fruit growers we were using the common sprayers in our own orchards—found their defects and then invented **The Eclipse.** Its success practically forced us into manufacturing on a large scale. You take no chances. We have done all the experimenting.
Large fully illustrated Catalogue and Treatise on Spraying—FREE.

MORRILL & MORLEY, Benton Harbor, Mich.

The Greider Strains,
fifty of them, are bred to make prize winners. Very low prices on birds and eggs, considering quality. Elegant 1903 catalogue sent postpaid for 10 cents. Write to-day.
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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

Special Notices by A. I. Root.

THE HOME VINEYARD.

The above is the title of Farmers' Bulletin No. 156, and it is one of the best of the Farmers' Bulletins. It contains 23 pages, full of illustrations. It gives the plan of propagating the grape that I gave for several years in the A B C book, and also gives the Fuller system, or something very much like it, in detail. If you are going to plant one or more grapevines send to the Hon. James Wilson, Secretary of Agriculture, Washington, D. C., and tell him you want Farmers' Bulletin No. 156.

DISSATISFACTION IN BUSINESS DEALS.

On my return home, after I had attended to my correspondence, etc., I asked our people here if they had any "jangles" or disagreements they would like to have me look into. I was glad to learn there were not many; but there were some letters from some of our advertisers, especially in the Wants and Exchange department, and from those who had received goods from said advertisers. Of course, in such cases we try to act as peacemakers; and just now I want to mention one of the troubles. A queen-breeder received an order and sent queens without the money; but, not hearing from the man in due time, he asked for his pay. But this man excused himself from paying by saying the queens were "not good." This thing has come up several times in years past; and I believe I once decided that the man who received queens, or, for that matter, any thing else, and neglected to acknowledge the receipt of the goods, and did not write any thing at all until he was *asked for the pay* he was not entitled to a rebate. Of course, circumstances may sometimes alter cases; but as a general rule I would say that whoever receives goods of any sort for which he has not paid, and neglects to say any thing or do any thing until he is dunned for his money, forfeits his claim to a rebate. Many business firms, you are well aware, say on their stationery, "All complaints must be made inside of ten days." Of course, you can not always tell whether a queen is good or bad inside of ten days; but if you do not pay inside of ten days you should certainly write something, stating whether the queens were received in good order or not. If they are dead, mail the cages right back just as you received them, with full statement. If you neglect to do this, or say nothing at all, I should say you should pay the bill in full unless the sender is willing to divide the loss. If the queen is received in apparently good order, and proves to be a drone-layer—that is, if she is warranted to be a tested queen—almost any breeder of good reputation will make the matter satisfactory—that is, provided you have acted fairly and honorably. But do not, under any circumstances, fail to let the man who has trusted you know about it. Postal cards are cheap; and a man who will not make use of them under such circumstances ought to be the loser. The best advertisement any man can have is the reputation of being *prompt.* Answer *quickly,* especially the man who has entrusted you with his goods without getting the money first.

BEESWAX WANTED.

The market for beeswax remains steady with a moderate supply. We are shipping so much foundation to dealers on next season's trade that we are using a much larger quantity early in the season than we have in former years; consequently our surplus is exhausted, and we are using supplies as fast as they arrive. We shall be pleased to hear from those having wax for sale. We are paying at present for average wax, delivered here, 29 cents cash, 31 in trade, and from one to two cents extra for choice quality. Send on your shipments as soon as ready; and be sure to mark them, so we may know whom they come from. Write us at the same time, and send shipping-receipt and a notice of the weight shipped.

Convention Notices.

A series of bee-keepers' institutes will be held in this State as follows: Canandaigua, March 2, 3; Romulus, March 4; Auburn, March 5; Cortland, March 6 Fulton, March 7; Syracuse, March 9 10; Amsterdam, March 11. Prof Frank Benton, of Washington, D. C., who is furnished by the U. S. Department of Agriculture at the expense of the Bureau of Institutes of the State Department of Agriculture, will address the meetings. The New York State Association of Bee-keepers' societies will hold its annual meeting at Syracuse, March 10, at 10 A. M., in the City Hall. Prof. Benton and other prominent bee-men have informed us of their intention to attend this meeting, and a profitable and interesting session is in store for those who attend. Special rates have been secured for entertainment at the Manhattan Hotel, Fayette St., at $1 25 per day.

Romulus, N. Y. C. B. HOWARD, Sec.

The Michigan State Bee-keepers' Association will hold its annual convention Feb. 3d and 4th, in the Council Rooms of the City Hall, at Lansing. The rooms are in the third story, back away from the noise of the street, yet they can be reached by the elevator.

Arrangements have been made at a nice, clean hotel, the Wentworth House, only two blocks from the place of meeting, where bee-keepers will be accommodated at $1.50 a day.

The Michigan State Dairymen will hold their convention at the Agricultural College, Lansing, on the same dates, as also will the State Veterinaries, thus enabling the members of all three societies to come at reduced rates. When buying your ticket you will pay full fare and ask for a certificate, on account of Michigan "Dairymen's Convention," as the secretary of this convention is to sign these certificates for all three conventions. This certificate will enable you to go back at one-third fare.

The first session will be on the evening of the 3d, when E. R. Root will show us "Bee-keeping from the Atlantic to the Pacific, as seen through the Camera and Stereopticon." This will consist of portraits of distinguished bee-keepers, of apiaries, hives implements, methods, etc, all fully explained. A more enjoyable entertainment for a bee-keeper can not be imagined.

Mr. C. A. Huff, of Clayton, Michigan, who has been experimenting the past season with formalin for curing foul brood, has promised to be present. Messrs Soper and Aspinwall, of Jackson, are not far away, and will probably be present. Mr. Aspinwall has kept about 70 colonies for the past 10 years, without losing a colony in winter. He can tell us how he has prevented this loss; also how he prevents swarming. Mr. T. F. Bingham, who has been so successful wintering bees in a cellar built like a cistern, is also expected. Messrs. A D. D. Wood and J. H. Larrabee both live at Lansing, and will help to make the meeting a success.

This is the first time that the convention has been held in the southern part of the State in several years; let us turn out and show our appreciation of the event.

W. Z. HUTCHINSON,
President.

Envelopes!!

Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

oward Co., 516 Masonic Temple, Chicago, Ills.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

To make cows pay, use Sharples Cream Separators. "Business Dairying" and cat. 288 free. W. Chester, Pa.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell 10 bbls. White Bliss Triumph potatoes—a little sunburned or green, but all right for seed—not sorted, $2.00 per barrel; will ship in the spring. J. W. BITTENBENDER, Knoxville, Iowa.

WANTED.—To exchange a large list of second-hand goods, as good as new, for foundation, mill, and extracted honey. Address
QUIRIN THE QUEEN-BREEDER, Parkertown, Ohio.

WANTED.—Comb to render into wax; will pay cash.
A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4¼×4¼ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. TYLER BROS., Nicolaus, Cal.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. KNAPP, Rochester, Ohio.

WANTED.—To sell a 10-h.p. horizontal engine with upright boiler, with pump, smoke-stack, and all connections, for $125.
J. W. BITTENBENDER, Knoxville, Iowa.

WANTED.—Two good, reliable, temperate, and experienced bee-men—men of order and neatness; one of these to thoroughly understand queen-rearing, providing the season or winter proves good.
M. H. MENDLESON, Ventura, Cal.

WANTED.—Partner to go into bee-business who has bees and locality; I furnish all capital and experience. G. ROCKENBAUGH, Camden, N. J.

WANTED.—To exchange an Odell typewriter and one Clipper bicycle for a good camera or Kodak, observatory-hive, bees, or supplies. Address
L. F. WEAVER, Wingate, Ind.

WANTED.—Those that are thinking of building to send us their names. We will do your work at reasonable prices, and guarantee satisfaction.
EVERSON & EVERSON, Architects, Brilliant, Ohio.

WANTED.—We want to hear from those having choice comb honey to sell, stating quantity, quality, size, and style of sections, and how packed. If not yet packed for shipment state how soon you can have it ready, and the price asked delivered here or free on board at your place.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—To exchange Angora goats for any thing useful. ED. W. COLE & CO., Kenton, Ohio.

WANTED.—To exchange step-ladders or common ladders for a tent about 20×40, old or new.
EDWARD GIGAX, Archbold, Ohio.

WANTED.—All the readers of GLEANINGS to send for the 196-page illustrated book "How to Make Money with Poultry," offered on page 75, by Cyphers Incubator & Brooder Co., Buffalo, Chicago, Boston, or New York. Mention GLEANINGS IN BEE CULTURE if you want one and it will be sent free.

WANTED.—To exchange 6-inch foundation-mill for wax, honey, or $5.00 cash.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Typewriter, wheel hoe and drill, and beeswax. Write for list of property in exchange.
F. H. McFARLAND, Hyde Park, Vermont.

WANTED.—An experienced man to take charge of apiaries. Address with references.
DR GEO. D. MITCHELL & CO., Ogden, Utah.

WANTED.—A Union combination saw, No. 5; must be cheap and in good condition. Write, stating price, to 1447 Charles St., St. Paul, Minn.

WANTED.—You to read what A. I. R. says on page 36 of GLEANINGS, Vol. 31. Order this book at once, and write me for prices on ginseng seed, or other information you want.
A. P. YOUNG, Cave City, Ky.

WANTED.—Two hundred stands of bees in any kind of hives, Langstroth preferred; must be cheap.
J. E. HAND, Wakeman, Ohio.

WANTED.—To sell 260-acre farm, apiary with 75 hives attached; 100 acres in cultivation; generally level and productive; new two-story house, barns, etc; ten miles to county site and station; good community. J. A. CLEMENTS, Green Bush, Walker Co., Ga.

WANTED.—To exchange Dadant uncapping-cans for cash, honey, or any thing I can use in the apiary.
O. H. HYATT, Shenandoah, Ia.

WANTED.—For cash, 250 or 300 colonies of bees in ten-frame hives; extra combs also. Prefer those that have been run for extracted honey in the Southern States. State prices on cars and what you have for sale. J. D. RHOADS, Las Animas, Colo.

WANTED.—To sell gladioli bulbs, Groff's Hybrids—13 gold medals at Buffalo; blooming size, $1.00 per 100 postpaid. O. COBLENTZ, New Madison, Ohio.

WANTED.—To sell, or exchange for brood foundation, 75 Lewis division-boards, nailed; also 700 No. 1 4¼x4¼x1⅞ sections, open four sides, new goods.
CHAS. D. HANDEL, Savanna, Ill.

WANTED.—An experienced man to work in comb-honey apiary. State experience and what salary wanted. CHEEK & WALLINGER, Las Animas, Col.

WANTED.—A young man with a knowledge of apiculture to do general work on a small farm; apiary small. State salary expected.
A. RICHTER, Bushkill, Pike Co., Pa.

WANTED.—Owing to recent death of my husband I want to sell my bees and entire outfit, consisting of 200 colonies of bees now located in three apiaries; two locations on Mangrove Island to move bees to in summer, three boats—including one gasoline launch, all necessary appliances to run for extracted honey. To those interested I will give full particulars.
MRS. ANNA M. KING, Wabasso, Florida.

WANTED.—To sell a distinguished half interest in newly established apiary, comprising in all 43 colonies of bees, 130 hives, 125 lbs. comb foundation, honey and wax extractors, wagon, and various articles necessary. Well located, and in charge of good beekeeper who will increase and work the bees the coming season at reasonable wages already agreed upon. Will sell at less than cost that I may extend another yard. Sole and indefeasible ownership conveyed by bill of sale. If not sold by first of March, will be withdrawn. *A rare chance to get a start.*
W. S. COOPER, 123 South St., San Antonio, Tex.

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of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

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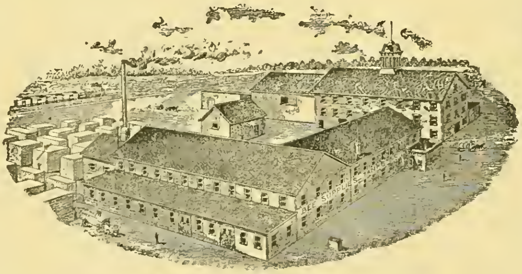

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Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. *Write at once for a catalog.*

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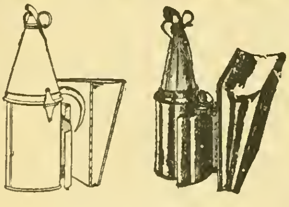
Chas. Spangler, Kentland, Ind.

Kretchmer Mfg. Co., Box 60, Red Oak, Ia.



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Henry Schmidt, Hutto, Tex.

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Bingham Brass Smokers.

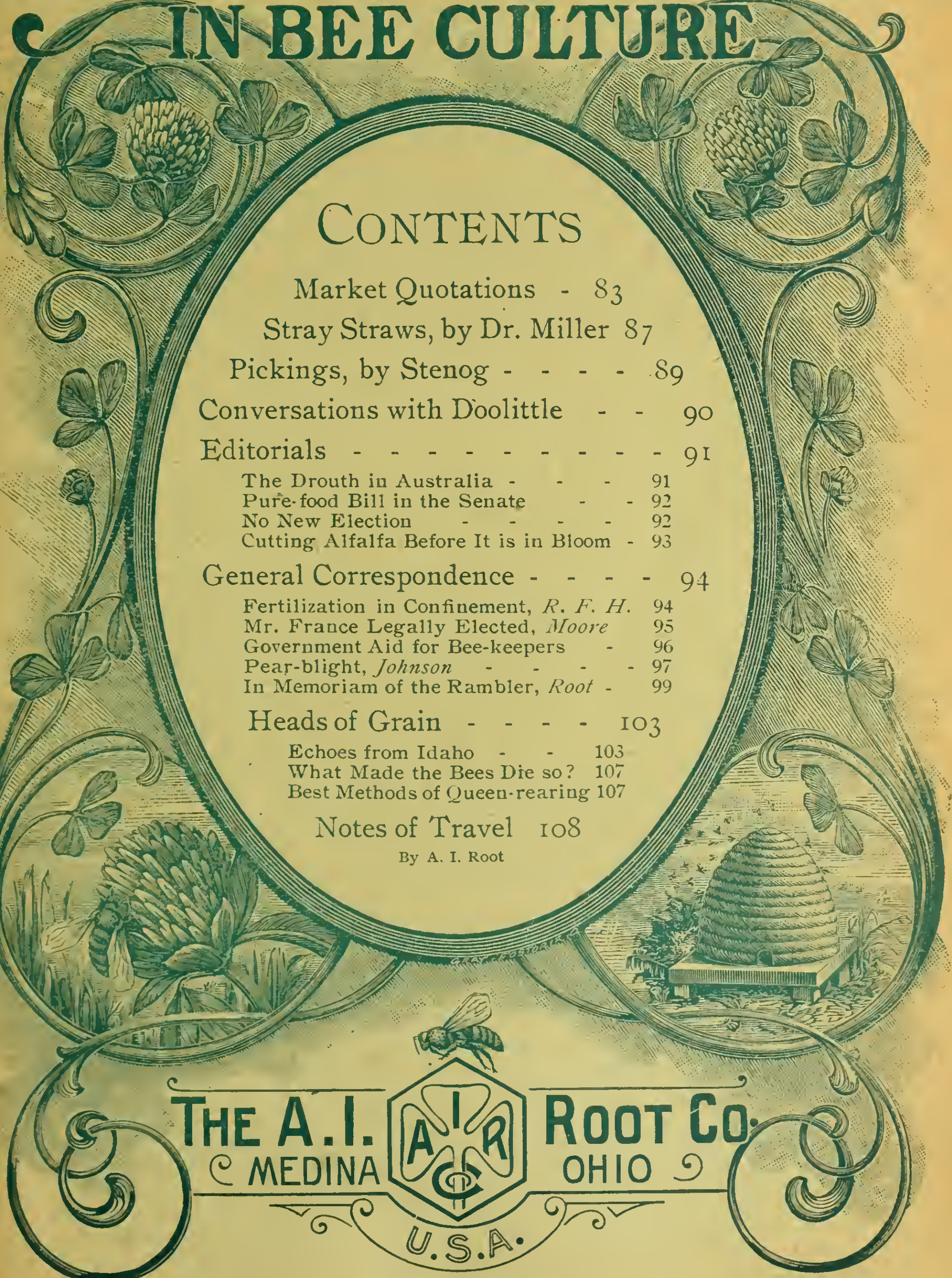
Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI FEBRUARY 1 1903 Number 3

GLEANINGS IN BEE CULTURE



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By A. I. Root

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such as Dovetailed and Danzenbaker Hives, Cowan Extractors, Sections, etc., etc. If you want Root's goods be sure to specify it in making your order or inquiry. We also handle local-made supplies. Let us have your specifications early so we may not disappoint you when you need the supplies.

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Get our prices before purchasing elsewhere. We are selling first-class make of goods at lower prices than the cheaper goods can be purchased for. If requiring Hives, Sections, Honey-extractors, Shipping-cases, Knives, Bee Smokers and Veils, Comb Foundation, or any thing else in the line of

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are headquarters for the State, and furnish local associations who can use as much as a carload at carload prices direct from the factory, or smaller lots from our well-furnished warerooms in Denver, at prices that defy competition for equal quality of goods. We are agents for THE A. I. ROOT COMPANY'S GOODS for Colorado, and want to hear from bee-keepers in need of supplies. We buy honey and wax.

Let Us Hear from You.

Now Ready!

We have the largest stock of Root's goods that ever came to Kansas, and we are ready to supply your needs in the apiary. We can save you freight and time by buying of us.

Danz. Hives, Weed New Process Foundation, Cowan Extractors, Smokers,

and every thing that you will likely need. We are now booking orders for Buck's strain of Italian queens. Last year we were swamped with orders in the spring, so I wish to ask my customers to send in their orders early so as to avoid the rush. Send for 1903 catalog. The 1903 edition of A B C of Bee Culture for sale.

* * *

Carl F. Buck, Augusta, Kansas.

Butler County.

Announcement!

We desire to call the attention of all bee-keepers in Washington, British Columbia, and adjacent territory, that we're now the Northwestern agents for

THE A. I. ROOT COMPANY,

and are prepared to furnish from stock here, and at other Washington points, any thing required by bee-keepers. Send your specifications early. If we do not have the goods wanted this will enable us to get them in our next carload. Catalogs free.

LILLY, BOGARDUS & CO.,
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Northern-grown Seeds, Trees and Plants, Poultry and Bee Supplies, Spray Pumps, Fertilizersand Garden-tools.

Honey Column.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CITY MARKETS.

DENVER.—Fancy white comb honey, $3.50 per case of 24 sections; No. 1 white, $3.00@$3.25; No. 2, $2.50@$3.00. Extracted honey, 7½@8⅓. Beeswax wanted at 22@27, according to color and quality.

THE COLORADO HONEY PRODUCERS' ASS'N,
Jan. 22. 1440 Market St., Denver, Col.

NEW YORK.—Market quiet. No large arrivals, but enough stock to supply the demand. Fancy comb, 15; No. 1 comb, 13@14; buckwheat comb, 12@13. Beeswax worth 29; good demand and no stocks on hand.

FRANCIS H. LEGGETT & CO.,
Jan. 20. Franklin and Varick Sts., New York.

CHICAGO.—There is no change in the honey market from quotations given in last issue. The weather has moderated, and we hope that the ensuing two weeks will give us a better movement.

R. A. BURNETT & CO.,
Jan. 20. 199 South Water St., Chicago, Ill.

CINCINNATI.—The demand for comb honey has fallen off, which generally happens right after the holidays, although prices rule as before. White clover comb, 15½; extra fancy water white, 16; no demand for lower grades. Extracted honey in fair demand, and sells as follows: amber, by the barrel, 5¼@5½; in cans, 6; alfalfa, 7½; white clover, 7½@8½. Beeswax sells from 28 to 30 cts. per pound.

C. H. W. WEBER,
Jan. 20. 2146 Central Ave., Cincinnati, O.

DETROIT.—Not much honey in market, and demand fair. Comb honey, white A No. 1, 17; white No. 1, 14@15. Extracted, 8@8½. Beeswax, 28@30.

M. H. HUNT & SON,
Jan. 15. Bell Branch, Mich.

PHILADELPHIA.—Very little change in the prices of honey or wax since our last quotation, and call not very brisk, although some lots are moving off every day. We would quote fancy white comb, 15@16; No. 1, 14; No. 2, 13. Extracted, white, 8; amber, 7. Beeswax, 29. We are producers of honey and do not handle on commission.

WM. A. SELSER
Jan. 10. 10 Vine St., Philadelphia, Pa.

SAN FRANCISCO.—Honey market as follows: Comb, per lb., 10@13. Extracted, water white, 6½@7; light amber, 6@6½; dark amber, 4@5. Beeswax, per lb., 28 cts.

E. H. SCHAEFFLE,
Jan. 17. San Francisco, Cal.

NEW YORK.—Demand for comb honey quiet on all grades, and prices show a downward tendency. Supply quite sufficient to meet demand, if not more. We quote fancy white at 15; No. 1 at 14; No. 2, 12@13; dark and buckwheat, 11@12. Extracted also quiet with abundant supplies with the exception of white clover. We quote white at 7; amber, 6½; dark, 6; common, in barrels, 60@65 per gallon. Beeswax firm at 29@30, with little supply.

HILDRETH & SEGELKEN.
Jan. 23. 265-267 Greenwich St., New York, N. Y.

FOR SALE.—Light and buckwheat extracted honey in cans and kegs; sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at $4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, $4.20 each. Prices on small cans and pails on application.

M. P. RHOADS, Box 216, Las Animas, Colo.

FOR SALE.—Alfalfa water-white honey, 60-lb. cans, two in a case, at 7½c; fancy basswood in 250-lb. bbls., 8c: same in 60-lb. cans, two to a case, 9c. We buy and sell for cash only.

E. R. PAHL & CO.,
294, 296 Broadway, Milwaukee, Wis.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

Our Advertisers.

THE DEMING CATALOG.

The 1903 catalog of the Deming Company, of Sale, Ohio is just off the press. As usual, our readers will look to it to exemplify in practical form the latest ideas in spraying orchards, vines, potatoes, shrubbery, etc. The Deming people have been so long engaged in the business of making sprayers, and their whole line has been brought up to such high efficiency in the estimation of spraying people, that it has become second nature to look to their catalog to show what is best adapted to any particular purpose. It includes hand, bucket, knapsack, barrel, mounted, and power sprayers. In certain sprayers of their line, notably the Century, Simplex, Peerless, and Success Knapsack sprayers, the mechanical agitation of the liquid, insuring perfect mixing of poison with the water, is worked out to a nicety. The wide adaptability and general usefulness of the line can not be realized without perusing the catalog. As usual, it will be mailed to any one writing for it, provided you mention this paper.

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I. J. Stringham, New York City
105 Park Place.

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Send us a list of the goods you want and we will quote prices by return mail. Discounts on early orders.

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The price of this new book is $1.00, postpaid; or, if taken with the WEEKLY American Bee Journal for one year, BOTH will be sent for $1.75.

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This foundation is made by a process that produces the superior of any. It is the cleanest and purest. It has the brightest color and sweetest odor. It is the most transparent, because it has the thinnest base. It is tough, clear as crystal, and gives more sheets to the pound than any other make. **Working Wax into Foundation for Cash a Specialty. Beeswax Always Wanted at Highest Price.** Catalog giving full line of supplies, with prices and samples, free on application.

Gus. Dittmer, - Augusta, Wisconsin.

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Colorado Honey Producers' Association,	1440 Market St., Denver, Colo.
Colorado Honey Producers' Assoc'n,	R. C. Aiken, Mgr., Loveland, Colo.
Grand Junction Fruit-growers' Association,	Grand Junction, Colo.
Robert Halle,	Montrose, Colo.
Pierce Seed & Produce Co.,	Pueblo, Colo.
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Klauber, Mangenheim & Co.,	San Diego, Calif.
J. K. Hill & Co.,	Uvalde, Texas.

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THEY WILL FILL YOUR ORDER PROMPTLY

If you are located near any of those, send us your name and address, and write them for prices.

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Complete stock for 1903 now on hand. Freight rates from Cincinnati are the lowest.
Prompt service is what I practice. Satisfaction guaranteed.
Langstroth Portico Hive and Standard Honey-jars at lowest prices.
You will save money buying from me. Catalog mailed free. Send for same.
Book orders for Golden Italian, Red-clover, and Carniolan queens. For prices, refer to my catalog.

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GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.
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Stray Straws

By Dr. C. C. Miller.

RAMBLER gone! We've lost a bright, racy writer, but, above all, a man with a true, honest heart. [Yes, indeed. See his obituary in another column.—ED.]

UNLESS the bee-papers are laid away and bound at the end of the year some of them are likely to get lost, says G. M. Doolittle, p. 50. In this locality they don't wait to the end of the year to get lost, so the only safe way is to begin binding when the first number comes.

"I WANT gentle golden Italians, good honey-gatherers: are the yellow as good as the leather-colored bees?" writes a man asking reply in GLEANINGS. Taken as a whole, the leather-colored are probably the better bees; but there are good and poor in each kind. If you can have the very best of the goldens, you will have something better than the average leather-colored; but if you must shut your eyes and grab, you'd better grab out of the dark pile.

"WHERE is the best place to buy queens?" says an inquirer. Most of the queens I have bought came from The A. I. Root Co., and from what I hear of them they are quite reliable, and that is probably true of most or all of those who advertise in GLEANINGS. [I am glad you put in the last end of the sentence. I do not believe there is very much choice between queens put out by our old breeders who have had years of experience in the business.—ED.]

A CORRESPONDENT in Missouri wishes to know whether he should continue to use "the Root eight-frame hive" for sections, or change to the ten-frame Dovetail or Danz. hive. If you give your bees close attention, making sure that they always have enough stores, and giving a second story when advisable, you may do best with the eight-frame. If you give them no more attention than other farmers usually do, a larger hive will be safer. A good way to determine the thing satisfactorily is to try a few of each kind side by side for three or four years.

WHEN I READ to the women-folks about A. I. Root being down in Cuba, I said, "Well, that will be all new to him for certain." One of the women replied, "He'll enjoy that more than anybody I know of;" and the other said, "Yes, but he'll be getting into trouble. I wouldn't trust him alone." Then I read on; and when I read, "When I got lost (as I felt sure I would)," three people smiled aloud. [Your women-folks know A. I. R. pretty well, I guess; but somehow he never gets into any very serious trouble.—ED.]

"I WOULD LIKE to use the 4x5 sections. and can not on the eight-frame hives to run lengthwise; can I on the ten-frame hives?" is a query sent me. I suppose one is no better than the other for that purpose; but I know I'd use 4x5 sections on either if I wanted to. [In answer to the question, I would state that both the Root and the Lewis Co. can now furnish supers to take 4x5 sections lengthwise of the super for either the eight or ten frame hive. Possibly the other manufacturers do, but I have not seen their catalogs, so I can not give any definite statement on that point.—ED.]

DELOS WOOD says some one claims that, if a swarm be returned to its hive, the bees will tear down the cells and not swarm again that season. Mr. Wood says his bees will swarm again the same or the next day, and asks my experience. Just the same as yours, friend Wood. To stop all swarming for the season I would have to keep returning for ten days or more, till the last young queen was out of its cell. [It is our experience that a returned swarm will swarm out the next day, and keep on doing so until there is nothing left of the colony; but I do not know of any authority that claims that returning a swarm to its hive will have the effect of having the bees tear down the cells and give up swarming.—ED.]

NOT INFREQUENTLY the question is asked what to do with combs filled with pollen. On the other hand, Dzierzon discusses, in *Leipz. Bztg.*, how to secure extra combs of pollen, advising that, in some cases, colonies be kept queenless in order to secure them. Many, especially beginners, do not appreciate the value of a good supply of pollen in spring [Pollen in combs is good property; but it sometimes happens we have too many of them. In such a case, if they be soaked in a tub of water, and then be put in the extractor, the pollen can be thrown out.—ED.]

CALIFORNIA NATIONAL HONEY-PRODUCERS' ASSOCIATION, p. 57. Does that mean that California is a nation all by its lee-lane self? Well, they do beat the nation, anyhow, in some things. [You would think that California was almost a little nation by itself if you were to travel through it on a Pullman for days and days, and yet not get out of its borders. Why, just think of it! It takes several hours in a Pullman to go through a single county, or at least some of the counties are larger than some whole States. Yes, indeed, they beat us in some things.—ED.]

THAT RETINUE surrounding the queen is something after this fashion in this locality: Under normal circumstances, when a queen is traveling over the comb, no worker accompanies her. If she runs against the hind end of a worker, the worker will pay no more attention to her than to another worker. If, however, the worker is in such position that she can recognize the presence of the queen, whether the queen touches her or not, the worker will invariably squarely face the queen; and if the queen stands still *long enough* there will be a circle of bees all facing centrally. As soon, however, as the queen moves on, the circle breaks up, never to be formed again of the same bees.

SWARTHMORE deserves credit for emphasizing the need of young bees for queen-rearing, and giving a feasible plan for getting them, p. 57. For some, a good plan would be to move a full colony to a new stand, leaving a frame of brood or so in a hive on the old stand to catch the returning fielders. Two days later there would be no old bees in the removed colony, and, after taking what young bees were needed, it could be returned to the old stand. That may get some too young, but they will be older in a day or two, and it would avoid the few old ones that would be captured by Swarthmore's plan. [I have often used the latter plan that you describe, with very good results.—ED.]

YOU SAY, MR. EDITOR, p. 65, that the A B C has never said "the old queen leaves with the swarm." Well, then, what does become of the queen? Does she always remain in the old hive? I have known cases in which I feel pretty sure that the queen came out with the swarm, and there have been some cases in which it has been reported that the old queen was found in the hive with the swarm after the swarm has hived. Do such things occur only in this locality? [This is a bad typographical error. The quotation in your first sentence should read, "The old queen *leads* the swarm." As it reads in your quotation, it is mere nonsense; but you will get the thought by reading the next sentence, even if the first one is queer. I was a little under the weather when the last journal went out, and was not able to read all the proofs.—ED.]

L. STACHELHAUSEN, p. 55, says I seem "to prefer a non-swarming race of bees to preventing swarming." My good friend, you misinterpret me, being, perhaps, misled by a certain troublesome editor who spoke, Dec. 1, of my "chasing that phantom of a strictly non-swarming race." I do not expect ever to reach that, and I do not wish to waste the bloom of my youth in a hopeless chase. But, as I have said in each number of GLEANINGS for this year, "I do not despair of finding some feasible plan of dealing with a colony that will leave it without the desire to swarm." So you see it's non-swarming I'm chasing after, not a non-swarming race, which is quite another thing. Your plan, mein guter Bruder, comes very close to the thing needed—closer than any thing else yet brought forth.

YOU ARE RIGHT, no doubt, Mr. Editor, in saying that the text-books don't say that the queen is among the first of the swarm, p. 65, and yet I should have made the same mistake as Delos Wood did; for until lately I think it has been the common thing (and I think it is more or less common now) to talk about the queen "leading out a swarm." [The statement has sometimes been made that the queen leads out a swarm, just as we say the sun rises, when neither is true. I have yet to find in any of our text-books, written within the last fifty years, any teaching to the effect that the queen leads out the swarm. I have known her to be the first out, and have heard her zeep, zeep, zeep; I have seen her come out of the entrance, and the bees followed right after; but the general rule is that the bees come first and the queen comes tumbling after.—ED.]

I THINK I see a quiet smile on the face of some when they read on page 66 about Congregationalists being not quite so stiff, formal, and perhaps aristocratic as Presbyterians. Bro. Root, there are some faulty in that way in both denominations, probably as many in one as the other, and you can't tell a Congregationalist from a Presbyterian with a high-power microscope by his life or belief, unless you ask him about his church government; and not one in ten can tell you the difference in church government. Some of these days they'll all be shaken up together in the same bag, and then turned out as Presbygationalists. [The reader is hereby informed that A. I. R. is a Congregationalist and Dr. Miller is a Presbyterian. The doctor does not like to be classed as any “badder” or any “stiffneckeder” than A. I. R. But, joking aside, there is a lot of hard sense in what the doctor says. There are several of our denominations that might be merged together. It is as foolish to have several weak churches struggling in a small town, each grasping for supremacy, as it is to have several weak nuclei for the purpose of getting honey. One good strong church, with denominational differences cast aside, is like a good strong colony of bees.—Ed.]

So you've got a “naughty mobile,” eh, Mr. Editor? It may not kill you as many times as a fractious horse, but how about other people's horses if you're all the time “coming down the road at a terrific clip”? All the same, I wish I had one. [That is one trouble with these self-propelled machines—they scare horses on country roads; but a great deal of this scaring is due to carelessness, indifference, or recklessness on the part of the chauffeur, or driver, of the machine. If one attempts to go clattering by a timid horse driven by a still more timid woman, and in so doing causes an accident, the “naughty” chauffeur ought to be taught a severe lesson. “Going down the road at a terrific clip”—why, I meant when the road was clear, and no horses were in the way. The “naughty” mobile is not here yet, but I shall expect it in a few days.—Ed.]

You may remember, Mr. Editor, how you and I tried one time to extract from both sides of a comb at once, and failed. Well, F. Blondet, of Brazil, says it is a success with him. I send you a picture of his machine, published in *Gazette Apicole de France*. [Well, no, doctor, we did not fail—we gave it up as impracticable. I succeeded in throwing honey out of the combs; but when it was very thick or when the combs were cold, there was too much residue honey in the combs. In a locality subject to a great deal of moisture, the honey thin, and the atmosphere very warm, an extractor arranged so that the combs stand like the spokes of a wheel will throw out the honey at both sides at once, almost as satisfactorily as the ordinary machines. I will tell you what, doctor—I have a feeling that such an extractor, with power attached to it, will do the work slick and clean with thick and thin honey; but a high rotative speed would have to be attained. I am studying up the gasoline-engine for two reasons: First, so that I may be able to run a “naughty” mobile; and, second, that I may be able to suggest some sort of combination of gasoline-engine and a honey-extractor. I have the plan all worked out in my own mind, and it works beautifully (in my own mind). See editorials.—Ed.]

I have no hesitation in saying your A B C is the best bee book ever published, and up to date in every way. W. P. Meadows.
Syston (near Leicester), England.

Pickings from Our Neighbors' Fields

By “Stenog.”

Slowly northward climbs the sun,
Bringing cheer and pleasure;
Life is in his beaming disk,—
Blessings without measure.

* * *

The *Irish Bee Journal* says that Maeterlinck's Life of the Bee has been approved by the committee appointed by the Irish Bee-keepers' Association, and is included in the course for expert examination. It is very likely they will conclude some day that that book is not a suitable guide for bee-keepers.

* * *

The page containing Pickings in the last issue went to press in an uncorrected condition—that is, the proof was not corrected. The editor was sick at home, and did not revise the press proof, as usual, and hence the errors. While this is very provoking to us, the reader will not lose the meaning by the wrong letter appearing. Typographical errors are like some kinds of vermin—hard to catch, and still harder to kill. Sometimes a type breaks off and makes bad work, especially with figures. We shall in the future bestow extra care on our proofs, and still more on their correction. Dr. Miller has my thanks for calling my attention to this.

* * *

The necessity of co operation among bee-keepers is as warmly discussed in Europe as here. The subject is well illustrated by the following, which I clip from that always interesting exchange, the *Irish Bee Journal*. It was written by Mr. T. Kirwan, Dunmore, Ireland:

> I have just returned from Dublin. While there I always take a look at the grocers' windows for section honey, and go in and examine for finish, etc., and to see what particular section is used, and at what prices bought from the bee-keeper. This last time, even though the season past was the very worst ever known, I saw some of the finest section honey I ever saw for sale in shop windows in Dublin, and I was told by the grocers that it was bought at from 5s. to 6s. per doz., or from 2s. to 1s. 6d. under market price at the Federation at present, and at probably 3s. per doz. less than after-Christmas prices. It is quite plain that those sellers are not members of the Federation, and that they, in consequence, are selling entirely at the mercy of the grocers, losing at so much per section as would get them, in one year's sale, a share in the Federation and the advantages of membership, and value for their honey, instead of glutting the honey market and keeping the prices down for themselves more than for other bee-keepers. It is also quite plain that they know nothing of the advantages of the Federation nor of the *Irish Bee Journal*. It is the interest of every member of the Federation, just as it is the interest of those bee-keepers themselves, that they should be induced to join the Federation, and not be keeping the price of honey down for themselves at least 25 per cent more than it would otherwise be.

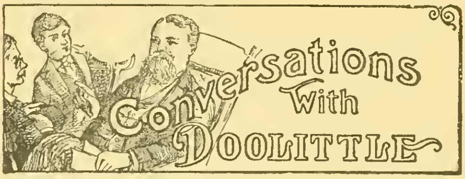
The editor adds that Mr. Kirwan is accustomed to market over $1000 worth of honey per annum. The shilling here mentioned should be reckoned as a "quarter" (25 cents) in our money.

* * *

The readers of Gleanings all know that Mr. Eugene Secor has for years been the poet laureate of American bee-keepers. I don't think he ever sought the position, but it fell to him by common consent. In addition to numerous effusions from his muse that have appeared in these columns he has just published a neat little poem called *The Hollow*. It is a review of his boyhood days in the eastern part of New York, where he was born. I give here the first stanza, of which there are 24 in the book.

On a certain small farm near the rugged old Highlands
Where the Hudson has worn its way through,
Leaving points that jut out to greet picturesque islands
Past which Henrick steamed north with his crew;
Within sound of the guns at West Point—Death atraining—
And the bellowing whistles of trade,
There, between rocky hills, on poor soil, uncomplaining,
Is the place where eleven youngsters played.

It is not clear who this Henrick (or Hendrick) was who steamed up the Hudson. If it was the Dutchman who gave a name to that river, I fear his steaming must have been over a cook-stove, as he had been dead 200 years when Fulton first applied steam to boats. But that's a small matter. The whole book will touch a sympathetic chord in every heart. Mr. Secor describes well the incidents of farm life, schoolboy days, hunting, etc. The book is elegantly printed, and is a gem throughout. There seems to be no price set on it. I would advise all to write to Mr. Secor and get a copy, for it is a nice ornament on any center-table.



AGE OF AND POLLEN IN BROOD-COMBS.

"Good morning, Mr. Doolittle. I see you are busy this morning."

"Well, perhaps no more than usual, Mr. Brown. The practical bee-keeper can always find something to do, winter and summer. He is something like the practical farmer, who, whenever he takes a vacation, must always leave something which he would almost as soon do as to take the vacation. But I am not too busy to have a little chat with you if you have any thing you would like to know along the apicultural line."

"Thank you. I am looking over some old combs which I have, preparatory for next season, and I came across some yesterday that are eight or ten years old, and the cells seemed so small to me that I wondered if they should not be renewed. How many years can combs be used for brooding purposes before they want renewing?"

"I have combs in my hives which have been in constant use in the brood-chamber for 25 years; and, while the cells do appear small in looking at them, yet, so far as I can see, it makes no difference in the size of the bees emerging from these cells."

"Is that possible? I was reading a short time ago in one of my papers that brood-combs should be renewed every six or seven years, or else the bees would become too small to be of value; and a few years ago a foundation-maker advised me to melt up all my old combs and bring him the wax therefrom, from which he would make me foundation for the bees so that the cells from this would give me bigger bees than could be obtained from my old comb; and here you are talking about no perceptible difference in the size of bees when the combs are 25 years old."

"I know that it has been talked that combs should be renewed every 5, 10, 15, or 20 years, and such a course might be to the advantage of the foundation-manufacturers; but I have yet to see the comb which I ever thought it advisable to throw away on account of the age of it. If you are surprised at what I have said to you, you doubtless will be more so when I tell you that an old bee-keeper told me once, when we were talking on these matters, that he had combs which had been in constant use for brood-rearing purposes for 40 years, and yet, so so far as any one could see, there was no perceptible difference in the looks of bees coming from these combs."

"But have you never seen lots of small bees in certain hives? I have."

"Yes, I have seen plenty of smaller bees in colonies; but I do not remember seeing a greater difference in those colonies having the older combs, as compared with those having combs more lately built. All bees, when first emerged from the cells, look small; but wait till they are from 48 to 72 hours old, and it will be seen that they look altogether different, especially during a honey-flow."

"Do you argue that a bee grows after it emerges from its cell?"

"I certainly do. Some seem to think that bees do not grow any after they cut out of the cells; but I think that a little careful observation will satisfy any one that the young bee 'plumps out' considerably after it emerges from the cell."

"Then you think that the size of the cell has little or nothing to do with the size of the bee reared therein."

"I do not know that I should wish to say just that; but I do not think it has so much to do with the size of the bees as some would have us suppose. Several times during past years I have compelled the bees to rear workers in drone-cells, and, so far as I could discover, using the closest scrutiny, said bees were not a whit larger three days after emerging than were those of the same age emerging from combs from 15 to 25 years old."

"But, does not each bee leave a shed-off skin in the cell at the time of emerging?"

"It is true that each emerging bee leaves a slight cocoon or lining in the cell; but as this cocoon is much thicker at the base of the cell than at the sides, and so thin at any spot that it is hardly perceptible, no bad results seem to arise therefrom."

"Then you think I will be all right in using these eight to ten year combs which I have?"

"Yes. I believe it is always safe to use combs as long as they are in good condition, and old combs have the advantage of being better for the bees during the winter than new; consequently I have no thoughts of throwing away my 25-year-old combs at present."

"Well, I am glad I had this talk with you, for it has saved my combs, which I had hated to destroy. But some of them have much pollen in them. How am I to get that removed?"

"I find that the bees will do this the best of any thing; and unless the pollen is old and hard, it will help them much at early brood-rearing if you give each colony one of these combs containing pollen early in the spring before they can secure it from the fields. This is the way I dispose of all combs heavy with pollen which are carried over winter."

"But a part of the combs containing pollen have been off the hives for three or four years, and it seems to have hardened in the cells, so I judge the bees can not remove it."

"I have had a few combs like these, and I place such in tepid water, and allow them to remain thus for a few days, when the pollen will all be soaked soft; and by putting them in the extractor after this, the most or all of it can be thrown out. I have so few that I do not wish to dirty up the extractor for them. I shake what I can out of the combs after the soaking process, when the combs are put in sweetened water for a few hours, and then given to the bees, which will clean them up as good as new. In fact, I think this the better way to work at all times, as it incites the bees to activity, cleans the combs, and produces more brood than would otherwise be reared."

"I thought of throwing these combs containing old pollen into the solar wax-extractor, and not trying to save them, even if I did preserve those having no pollen."

"I would not do this, even did I intend to melt these combs."

"Why? Is not that the best way to get the wax from them?"

"It is the best way to get *no* wax from them. I find that where there is much pollen in combs thus melted, said pollen will absorb all the wax there is in these combs, and quite a little more from other combs which may be in with this. Since discovering this fact I am careful how any pollen is allowed to go into the solar wax-extractor, as pollen is a great absorbent of melted wax."

"How would you render such combs then?"

"If combs containing much pollen are to be rendered for wax it should be done by means of boiling water, as the water in agitation from boiling dissolves the pollen as well as to liquefy the wax, thus allowing the wax to escape without being absorbed by the pollen."

Editorial
By E.R. Root.

On page 104 of this issue our readers will find a picture of the Chicago Northwestern Bee-keepers' convention held last December. Those who have never seen a large crowd of men so enthusiastic on the subject of bees that they almost begrudged the time spent in taking the picture can not realize how much they have missed. It is a pleasure to shake hands with those just starting in; but it is a greater pleasure to meet the old veterans whom we know so well by reason of the bee-papers. Go and find out.

DEEP SNOWS AND CLOVER.

We are getting an old-fashioned winter—fine sleighing everywhere, deep snow—quite like the weather we used to have in our younger days; and don't you remember when we used to have those old-fashioned winters we had old-fashioned clover-honey crops? Some one has said that heavy deep snows continuing over a good portion of the winter means a heavy and luxuriant growth of clover, and that means honey of course. I believe myself there is an intimate relation between heavy snows during winter and a crop of clover honey in summer.

THE DROUTH IN AUSTRALIA; THE INHABITANTS OF THE RAIN-BELT.

Mr. H. L. Jones, of Goodna, Aus., one of the representative bee-keepers of that country, writes that his people are having the most disastrous drouth they have ever known, and that at least 80 per cent of the cattle have died; so also have the forest-trees by the thousands, from lack of moisture. Bees, as a natural result, he says, have had a fearful time. While we sympathize with our friends on the other side of the globe, we hope that condition will not swing around to this side. After all, when we compare the drouths in Texas, California, and Colorado, it seems as if the portion in the eastern and central part of the United States through that part of the country known as the rain-belt were the freest from the extremes of weather conditions of any place on the globe. We who live in this favored section ought to consider ourselves fortunate.

THE PURE-FOOD BILL BEING HELD UP IN THE SENATE.

The pure-food bill that passed the House is being held up in Senate. If you will look over the original vote in the house you will see that, on the day the bill passed, only about a fourth or a third of the members were present. All the rest "dodged." Those that remained had stamina enough to stand up for their colors, and vote their honest convictions. If it is not held up in the Senate as now seems probable the same game may be played over again. The bill is being shoved over from one time to another; and the obvious purpose is to carry it past the time of this session. It is conceded by the friends of it that it will pass overwhelmingly in the Senate, *if it can be brought to a vote*, for the Senators will not dare to vote against it. But the glucose people, and those engaged in the business of adulterating food products, realize that their best tactics is to delay.

The thing for our readers to do is to keep up the pressure—get in touch with the men, the politicians, who make your Senators. Get them to write to those same Senators, who, perhaps, are inclined to postpone.

It would be a monstrous shame, and no credit to the Senate, if this bill fails to pass. Keep up your letter-writing, even if you have already written. But your best work will be to write to the prominent politicians who have influence with your Senators. Do not forget that every State has two Senators. Find out who those men are, and then address them at the United States Senate, Washington, D. C.

NO NEW ELECTION TO BE CALLED; MR. N. E. FRANCE TO QUALIFY AS GENERAL MANAGER.

In this issue will be found a further statement in regard to the Association matter. While we may regret the clause in the ballot that has been construed as electioneering for Mr. France, I am now convinced we can not get back of the election we held in the month of December as the constitution provides. To hold another election at some *other time* would, I believe, be unconstitutional and illegal, as Attorney Moore says. Several other lawyer beekeepers and good parliamentarians in the ranks have given precisely the same opinion. In view of this the Directors, I understand, or a majority of them, have decided against calling a new election, although I am satisfied they would be glad to do so if it could be done without making the situation tenfold worse than it is, and confusion worse confounded. I had hoped one might be called.

Mr. France has been requested to qualify, and has submitted his bond to the Directors for their approval. We shall soon be ready for business. Now let us, one and all, stop our wrangling, stand by the constitution, work for the Association, and move "on to victory," as Mr. Moore says. There is much important work to be done, and I believe Mr. France to be equal to the occasion. If he is not, let us put in the man who is, at the election next December.

POWER EXTRACTORS; A QUART OF GASOLINE FOR A WHOLE DAY'S EXTRACTING.

In this issue, in Straws, I have made reference to the fact that I was studying up gasoline-engines with a view of getting one rigged to an extractor so that the engine and extractor would be a common commodity in bee-supply catalogs. As I have said heretofore in these columns, a high rotative speed can not be secured by hand-turning—that is, turning a crank—at least, not high enough to get the combs clean. My experience in extracting in California (and Mr. Mendleson put me at the machine and made me earn my bread that day by the sweat of my brow) teaches me that at least the large machines should be run by power, to save honey as well as manual strength. The result of my studies along the line of gasoline-engines is such that I am now thoroughly convinced that such an engine can be satisfactorily coupled to an extractor. I have roughly estimated that a quart of gasoline would take care of a big extracting in one day. Just contrast that with the hire per day of a man to turn one of those big machines two months in the year in California, and consider the further fact that the little motor as well as the man could be used for other purposes too numerous to mention.

But some will say that the speed of a gasoline-engine is constant, and that some combs can't stand the speed of others. True; but a gasoline-motor can be throttled to a certain extent, and adapted to any speed; and it is done to a great extent in the automobile. But in the case of the extractor it would be more practicable to leave the speed of the engine constant and use the roller and disk transmission to give a variable speed from the lowest to the highest point without jar or bang. Of course, as intimated above, some extracting-combs can be rotated at a higher speed than others. It is a common practice to put combs of equal age or strength into the extractor at a time, and then extract the weak ones at a whirl by themselves.

Now, then, by a power extractor and a variable speed that can be controlled by means of a lever, either by hand or foot. one man could do the uncapping and extracting and a much more thorough job than two men could do by hand. My impression now is that the gasoline-engine will not be so very expensive; and when that day arrives, no extensive extracted-honey man will think of trying to sling his honey out by hand.

I should not, perhaps, have begun the study of the gasoline-engine with such real enjoyment had it not been for the incentive of the "naughty" mobile; but when I saw how simply one of those little motors could be adapted to an extractor, a new and interesting field of investigation was opened up. Why, the gasoline-engine in its practical form to-day is only about ten years old, although the gas-engine has been known for a good many years.

I suppose that some of you will think I am a little wild when I say that I think a quart of gasoline will do a big day's work in extracting. What do you think of this? A gallon of gasoline (worth 10 cts. by the barrel) has driven a two-passenger four-horse-power automobile with two passengers 40 miles over the road, the whole outfit weighing about 1000 lbs. The *average* fuel consumption is a gallon to 20 or 30 miles. Contrast this with horse feed, oats at 37 cents a bushel, and hay at $14.00 a ton. Contrast a quart of gasoline (worth 2½ cts. in Medina) with a man at $1.50 a day, who sometimes can not be had for love or money just at the height of the season.

N. B.—Don't ask us to supply power outfits just yet.

CUTTING ALFALFA BEFORE IT IS IN BLOOM; PROOF THAT IT DOES NOT PAY.

IN our Jan. 1st issue are some extracts from Bulletin 114, of the Kansas Agricultural Station, to the effect that alfalfa hay cut after coming into bloom made a better hay for stock, and had a greater food value than that cut when it is in full bloom. I am in receipt of a bulletin sent by Mr. Frank Rauchfuss, from the Experiment Station at Fort Collins, Col., that goes to show very strongly that alfalfa cut in full bloom not only yields *more* hay, but actually has *more* nutritive value than when cut early. Mr. Rauchfuss, in referring to this bulletin, says:

> *Friend Ernest:*—I have just read your article on cutting alfalfa in your issue for Jan. 1st. It seems that you do not get all the Experiment Station bulletins, as the Colorado station has issued a bulletin lately on this subject, which puts the matter in an entirely different light. Inclosed I send you the bulletin referred to, and I hope you will quote portions of it.
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> I know that many extensive cattle-growers, not dairymen, hold that it pays them to let the alfalfa come to full bloom before cutting, and Prof. Headden seems to have come to the same conclusion in his experiments. FRANK RAUCHFUSS
>
> Denver, Col., Jan. 9.

From the bulletin above mentioned I make the following extracts, which will speak for themselves:

> When we express results in percentages we do not give the actual amounts produced per acre unless we also state the weight of hay produced. This is an important factor, and one which we must take into account. We usually assume that this is thoroughly understood, and that it is accepted as a fact that the crop increases in weight from the time of budding till it reaches or slightly passes full bloom, and then decreases. The amount of this increase will vary with a number of conditions; but the following figures, based upon the results of observation, may serve to give a definite idea of how much this increase amounts to. If we cut enough alfalfa in bud to make 100 lbs. of hay, the same alfalfa would make 126 lbs. if allowed to stand till in half bloom, and 145 lbs. if allowed to stand till in full bloom. If allowed to stand longer it would decrease. If the question were, "When shall we cut alfalfa in order to make the most hay?" the answer would be, "When it is in full bloom." The question as presented to us is, "When is the *best time* to cut alfalfa?" This time is evidently that at which we shall have, not the largest yield of hay, nor of the best quality, but the largest yield of digestible food ingredients. This answer considers two factors — composition and digestibility. Every feeder will mentally add, "But there are other things to be considered," which is true, but it is assumed that the animals will eat the hay of which we are writing, and will relish it.
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> We have given the amounts of hay which the same quantity of alfalfa would give when in bud, in half bloom, and in full bloom, using the figures obtained for our Colorado alfalfa. The 100 lbs. of early-cut hay will contain 15 lbs of albuminoids and 1.5 lbs. of amids; the 126 lbs. of hay, alfalfa cut in half bloom, will contain 15.8 lbs. of albuminoids and 2.9 lbs. of amids; the 145 lbs. of hay cut in full bloom will contain 19 lbs. of albuminoids and 2 lbs. of amids. Leaving the value of the amids of the question, for they are assumed to have only a small value as compared with albuminoids, and reducing these figures to the basis of a pound, we find the relative values to be 1.16 for the early cutting, 1.00 for that cut in half bloom, and 1.08 for that cut in full bloom. Or, stated otherwise, 86.2 lbs. of alfalfa hay cut in bud, or 92.6 lbs. cut in full bloom are equal in value, using the albuminoids as the criterion, to 100 lbs. of alfalfa hay cut in half bloom, so that alfalfa hay cut in half bloom is inferior to that cut in full bloom, and still more inferior to that cut in bud. In this statement we assume that the albuminoids are equally digestible at the three different stages of development here specified. If this be true, the largest amount of digestible proteids would be obtained by cutting in full bloom; for while the relative values of the hay cut in bud to that cut in full bloom is as 100 to 107, the yield is about 100 to 145, leaving an advantage of 38 lbs. of hay on each 145 lbs. of hay cut in full bloom. These figures refer to the first cutting. . .
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> The feeding experiments are decidedly in favor of the early cutting, calculating the value on pound for pound of hay produced. But if we calculate its value in terms of beef produced per acre, we come to the same conclusion at which we arrived from the consideration of its chemical composition and the relative crops produced at the respective periods. Mr. Mills summarized the results of his three seasons' feeding as follows: That to produce one pound of gain, beef, it requires 18.21 lbs. of hay of the early cut; 33.44 lbs. of the medium cut; 23.97 lbs. of the late cut (p. 11, Bulletin 44). But we have seen that the relative quantities of the early, medium, and late cut are 100, 126, and 145. Accordingly we would obtain for the values of the respective cuts in terms of beef, 5.4 lbs. for the early, 3.8 lbs. for the medium, and 6.0 for the late cut. We would, therefore, answer the question in so far as it pertains to the first cutting, that the best time to cut alfalfa is at the period of full bloom, for at this period we not only get the largest amount of hay, but also the largest return in pounds of beef per acre.
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> The results of feeding experiments with the second cutting lead to the conclusion that the best time to cut this crop is what Mr. Mills designated his medium cut.
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> I conclude that, after allowing for a little latitude in the use of the terms "half bloom," "full bloom," "late bloom," etc., the time to cut alfalfa in order to get the greatest value per acre is at the period of full bloom, and that there is a period of about a week during which its value is essentially constant.

Inasmuch as Prof. Headden has been erroneously quoted as one who believes that alfalfa hay should be cut before it is in full bloom, the extracts put an entirely new phase on the matter before us. For Colorado, at least, there is not much danger that the ranchers, if they follow the advice of the Experiment Station, will cut their hay too early for the bee-keeper. Prof. Headden is a very accurate, careful, scientific man; and I think it is reasonable to assume that he is probably right, rather than the Kansas Experiment Station, which has not given this matter of alfalfa nearly the attention that the Colorado Station has.

GENERAL
CORRESPONDENCE.

FERTILIZATION IN CONFINEMENT.

Failure of the Experiment to Mate Queens in a Tent 30 Feet High, a la Davitte; Mating Queens and Drones in a Large Glass Carboy Reported to be a Success; some Interesting Suggestions.

BY R. F. HOLTERMANN.

The question of controlling fertilization with queens is one of varying interest. Time and again it has come to the front, and again taken a less prominent place. When with D. A. Jones, of Beeton, Ontario, as a student, 22 years ago, the question was often discussed; and, aside from fertilizing queens on various islands in the Georgian Bay, nothing came of it. I remember well the operations in connection with the islands were carried on at great expense. Aside from the expense of keeping and getting men there, and shipping nuclei there and back, there was a great loss of queens. If I mistake not, in the act of copulation the drone perishes; that and perhaps the natural condition of the queen caused both to drop, and probably many queens were lost in the water.

The next time the question was promimently brought to my attention was at the International Bee-keepers' Convention at Detroit, when Prof. McLean gave the results of his test under the direction and expense of the government at Washington. I was at the convention, and Prof. McLean struck me as a man thoroughly in line with his work, but a man who lacked, as a beginning for his work, much practical experience which might have been obtained from many bee-keepers who attended that convention.

The next deep impression which the question made upon bee-keepers was when Mr. Hutchinson, in his *Review*, brought the question forward. I wrote to Mr. Davitte, and received a very kind reply. He is certainly honestly convinced that he made a success of this method of fertilization. We know that he was unable to answer certain questions Editor Hutchinson asked, but that does not prove that they were not answered.

This resulted in the erection of a large tent of netting fastened on a framework 25 ft. high and nearly 30 ft. in diameter. Great pressure of work in connection with honey production prevented me from making as extensive tests as I should have liked, but I had on the side between the tent and the bee-yard, which contained from 90 to 185 colonies, a covered shed with board back. In this board back, fly-holes were bored, covered at will. On shelves the nuclei with virgin queens were placed. On the other side of the tent two colonies with choice drones were placed; the entrances were guarded, as also were the entrances of nuclei, with perforated metal. The drones had liberty only through the fly-holes into the tent; and, more, these drones knew not what greater liberty meant than what the tent afforded. I mention this because I consider it very important. Now as to results.

A large number of drones flew and returned to the hives. To my knowledge, not a queen entered the tent. They remained unfertile as long as the perforated metal was kept at the entrance. In two cases, after 15 days I removed the metal, and the queens were then mated. Frequently, however, about the middle of the day I saw the young queen attempting to get out through the perforated metal, and I pointed this out to a young man I took as a student for the summer.

Many would say this is complete proof that queens can not be fertilized in the way attempted; but I am not so sure, even now. The queens were in nuclei, practically, between the tent and the main apiary. There were, perhaps, 200 drones flying on the side which had the perforated-metal entrance to one on the open side. Did this cause the queens to attempt to get out in this direction? Perhaps it did—some may tell.

It was rather a surprise to me that practically not a bee journal has noticed the announcement of Mr. Rowsome, another ex-student of mine, who is lecturer on bee-keeping at the Ontario Agricultural College, Guelph, Ontario, and who spoke of this very method when with me, but in which he did not get much encouragement from me. In his report, Ontario Agricultural College, 1901, page 125, Mr. Rowsome states:

> Some have tried buildings of netting and also of glass; but queens and drones fly directly to the netting or glass, and devote their whole attention to getting out, without seeing each other. Last July I made the following experiment: I placed a large carboy of glass, neck downward, and introduced two virgin queens into it. As they were flying up the glass sides of the carboy, trying to get out, a dozen drones which were in a cage were introduced also. The drones immediately fluttered up the glass to the queens above, and coition took place. This experiment was tried with eight queens in all, and seven were fertilized. The eighth may not have been virgin before being introduced into the carboy. A little patience is sometimes necessary. When drones do not see a queen the drones and queens must be shaken down to the bottom of the carboy so as to induce them again to flutter up the glass; and when drones and queens are flying with their wings almost touching, coition is almost sure to take place.

In conclusion led me to ask, "Can we afford to override selection in nature to the extent of giving to (other things being equal) the less active drone the power to influence the future worker bee? Is variety and human selection better than natural? It may be desirable for the queen-breeder who has to guarantee variety; but is it for the practical honey-producer? For my part I shall not attempt to answer the question in this article.

Brantford, Ontario, Canada.

[We are greatly interested to know about that mammoth queen-mating tent 20 feet high and 30 feet in diameter, constructed along the lines suggested by Mr. Davitte in the *Review* and on p. 348 of our Apr. 15th issue, 1901. The experiment was a success in that you were able to get the drones to fly out and in; and so far as *they* were concerned they believed they had the range of the whole wide world; but why the *queens* did not fly out is a mystery that remains to be solved. I can only suggest that if while you had that big tent, and the school of drones was circulating around in it, you had taken several virgin queens of the right age and thrown them up in the air, copulation might have taken place. You would then, of course, have to step inside to catch the young queens as soon as they dropped with their companion.

Like yourself, I do not consider the experiment a failure. If some means could be devised by which the queens could have been coaxed out into the inclosure through the unobstructed entrances, instead of trying to squeeze through the metal that barred them from all outdoors, the plan would have worked. The greatest fear I had was that the drones could not be made to fly out into an inclosure without bumping their heads against the netting in a vain attempt to escape. So far I believe you have demonstrated that such a part of the work can be done. It remains to go only one step further, and get queens to go out also. I would suggest that, if the experiment is to be repeated, that a young virgin of flying age be put into a nucleus having nothing but brood and hatching bees. It would then be possible to shut up the outer entrance, leaving only the entrance leading into the tent. If a dozen such nuclei were prepared, it seems to me there would be no reason why the plan could not be made a success.

About that glass bottle—the experiment almost staggers me. *If* it can be made to work, there is no use in fussing with a big tent. If I mistake not, similar experiments were tried over and over again 25 or 30 years ago, but without success.

We had not seen an account of the experiment of Mr. Rawsome, and that is the reason I have not mentioned it in our columns. But nevertheless there is no use in being "doubting Thomases," and I suggest that queen-breeders give the matter a test in the manner explained by Mr. Rawsome. A big glass carboy can be obtained at almost any drugstore.

My brother Huber will be home from school this summer, and we expect to turn him loose in the bee-yard, to do experimental work. I had planned to do a great deal of that kind of work, but lack of time always stands in the way.—Ed.]

MR. FRANCE LEGALLY ELECTED.

Why we Can't go Back of the Returns of the Last Election.

BY HERMAN F. MOORE.

I have just finished reading Mr. E. R. Root's masterly *resume* of the General Managership trouble. There is no doubt that the words, "*has been regularly and properly nominated, and is believed to be worthy of your support*," should never have been printed on the ballot. I can not excuse Mr. Eugene Secor for their presence there. He, a practical politician, must have known their impropriety at the time. Perhaps he thought this was only a family matter, and the ordinary rules of ethics did not apply. I hope I am not unjust or uncharitable when I say that I believe the *true* reason for his action was a desire to get back at Abbott. The presence in the annual report of words indicating that Abbott had never turned over the money, goes to prove this view, when he must have known that Dr. Mason had the money before his death.

Mr. Abbott never was my personal preference for General Manager, nor was Mr. France; but I felt that, as Mr. Abbott had agreed to submit his status to the election in December, there should have been no attempt to prevent such a submission.

I believe the said words so printed on the ballot were the result of an effort on the part of some of our officers or members to do up Abbott at all events. If so, such action is on a par with the most disreputable party poltics, and must be openly condemned.

However, I think the old National is in no danger of immediate dissolution, any more than the family is in danger when the boy comes home and announces to father and mother that "he is not going to school any more." The young man gets a certain needed chastisement, and the great institution goes along very much as before.

Let me say, while I am speaking, that one great body (the greatest bee-keepers' society in the world) must be governed by strict parlimentary rules. All bodies of men, associated for a common interest, have from time immemorial submitted themselves to certain rules that make for harmony and the dispatch of business. There are Robert's Rules of Order, Reed's Rules, etc.

Some of the errors into which our officers have fallen would have been easily avoided by following closely the rules of order applicable to such cases. This great body of 1000 American citizens can be controlled in no other way.

I am satisfied that no new election is possible under our constitution, which says, "The election shall be held in December each year." No new ballot can be cast until Dec., 1903, and none of us desires 12 months to elapse, and nothing done. The matter has gone to the voters in the regular way, and they have decided for Mr. France. This should end the dispute. I think even

Mr. Abbott would not desire to go to the voters again for another beating.

I think I am within the facts in saying that Mr. N. E. France, *the General Manager-elect*, has no enemies and will make a good officer, satisfactory to all. Let him serve his term, and let our Association move on to victory.

Chicago, Ill.

[As I said in our last issue, I can not believe that Mr. Secor intended to be unfair in his ballot. There was only one nomination that came through the official channel, and I do not think he thought that the sentence under Mr. France's name would be construed as an electioneering matter; for if he did, he would have left it out, as he would well know that a big protest would be raised. His record during the years he has served us has been too good to merit severe censure for his last official act, which, at most, was an error of judgment.

Regarding the implied statement that Mr. Abbott had not turned over the funds in his hands, I read the report at first just as you did, and as others have; but if you look the report over again you will see that Mr. Secor says in his third paragraph, immediately following, "The untimely death of the Secretary, Dr. Mason, probably accounts for his not remitting money in his hands for dues collected at Denver and at *other times*." Italics mine. The second paragraph was unfortunate; and, while we deplore it, we are hardly justified in believing that Mr. Secor *meant* to "get back" at Mr. Abbott.

Mr. Moore very sensibly urges that we stick to the constitution, and proceed along parlimentary lines, even if mistakes have been made. This is all we can do now. Mr. France certainly is not to blame for any of this muddle or trouble.—ED.]

GOVERNMENT AID FOR BEE-KEEPERS.

Experimenting with Apis Dorsata and other Species of Foreign Bees.

BY W. K. MORRISON.

Either my communication relative to government aid to bee-keepers was not clear or Dr. Miller must have misunderstood me when he remarked that the United States has men quite able to undertake research work for the benefit of bee-keepers. There can be no sort of doubt about that—at least there is none in my mind; but is the good doctor sure the able men he has in his mind's eye would be the men selected? This is the point I am rather dubious about. There is also another point on which there rests some doubt in my mind. It is this: Would these able men not be liable to service in all sorts of wildcat enterprises by the orders of some person or persons who would be lord over them? Things like this have been done. There is any amount of work to be done in behalf of the art and science of bee-keeping, and I think apiculture does not begin to get the attention from the United States government which it really deserves, and some industries of far less importance get valuable recognition from Congress.

But before bee-keepers apply for more recognition let them make up their minds what they really want before presenting an appeal for aid. It would be a very grave mistake to apply without a well-defined program ready, one that would clearly appeal to the practical man. Congressmen are very practical men.

The only serious problem that bee-keepers have discussed with a view to asking government aid is the importation of *Apis dorsata.* I believe dorsata would be a valuable acquisition; but as it has never been domesticated, and we are practically without information as to its habits, it seems rather doubtful whether we should ask for government aid for such a scheme. It seems to me it would require the attention of experimenters for several years before any thing tangible would result. *Apis dorsata* and its allies should be carefully studied on their own native heath before attempting their introduction into North America. If they were already under domestication it would be different; but we here have to deal with a purely wild animal about whose habits we are mostly ignorant. I believe, however, with Prof. Benton, that it can be tamed and harnessed to the use of man. The reports of the government of India on the bees of that country I take no stock in, as such investigations are usually left to public officials whose knowledge of bee-keeping is rather small, in some cases probably non-existent.

But why not broaden the subject? Why stick to one bee? *Apis Indica* we *know* can be domesticated, and is not likely to be a nuisance to civilization. There are very many others. Africa has bees in abundance over its whole length and breadth. Are none of these valuable? We do know that bee-keeping is the sole occupation of large tribes of people in that continent. South Africa is a land of flowers, mostly melliferous. Can't we glean something from a study of them? The East Indies, Siam, South China, South Ameriea, Asiatic Turkey, and other countries all have their little honey-gatherers. It is very likely indeed that some of them are of great merit, and worthy of early introduction. This is hardly a field for enterprise, and is just where a kindly government might step in to assist, particularly so since the quest for bees may be united with a quest for plants that yield nectar bountifully. To do this would require a staff of keen observers, past masters in bee-keeping, for it would take one man a lifetime to cover the ground I have mentioned, even superficially, which would hardly do in this particular instance.

There is another problem which is equally fascinating, but not so romantic; it is, getting honey-plants which it would pay bee-keepers to raise, something like buckwheat or alfalfa. I have an idea there are lots of them. There is also a work to be done in the way of experimenting with reputed honey-plants (such as catnip) on a grand scale—something that can not be done by private means.

There is also a chance to do something for bee-keeping in connection with forestry. Some of the great reservations would make excellent bee-keeping preserves. Then in planting trees for either timber or shade, due regard should be had to the interests of bee-keepers. This is a rather difficult and knotty problem, and to be undertaken only by a wealthy government. It would be well if a beginning were made along these lines, for some of them would take many years to solve; and seeing other industries get valuable help from the government, bee-keepers need not be slow about the asking. The cost of a single warship would pay $100,000 a year for 30 years. The same sum of money might double the bee output of the United States.

[Your two last sentences suggest why the funds are not forthcoming more readily for experimental work. It has always seemed to me there is too much fuss and flurry about the big armaments. Millions of dollars are wasted in useless navy equipment. Take, for example, the big 16-inch gun erected off Sandy Hook. Even the best government experts condemn it, now that it is just completed, and thus a cool $100,000 is wasted. There are numerous other examples of this kind, and yet there is any amount of needed experimental work that would be useful to the peaceful citizens of the United States, if it were not for such foolishness. As Mr. Morrison very properly says, the cost of one warship alone would give us $100,000 for 30 years. Warships are all right in their place; but too many of them make a drag on civilization and progress. I hope our nation will not adopt the policy of Great Britain in this respect. The most of her navy equipment to-day is out of date, and it would be practically useless when pitted against modern armament. If we keep on building warships year after year we shall have a lot of out-of-date smashing machines. It does not seem as if we can ever have any very great war again, notwithstanding the jingoes who rant over Venezuela.—Ed.]

PEAR-BLIGHT.

Are Bees Chief Agents in Spreading it?

BY J. E. JOHNSON.

Lately scientific investigation seems to prove this; but experience proves just the opposite. After considerable experience and observation, and after careful study and thought, I have found the following to be facts:

1. Any bad-blighting variety planted in soil very rich in nitrogen, or made rich with barnyard manure, and given plenty of moisture, will, in most instances, blight before it ever reaches the blossoming period. I have both bees and trees, and I have never yet seen a bee alight on a pear-tree, large or small, when not in blossom. My first experience was to set little year-old trees, Bartlett and Kieffer. These were healthy trees, and free from blight; but I made the same mistake that nearly all first make; and that is to plant in the garden in the richest soil I had. This was in Kansas. However, there were no other pear-trees on the place, neither did my near neighbors have any pear-trees. The season was wet; and before the summer was over, all were dead with blight — first the Bartletts then the Kieffers.

2. I have seen large pear-orchards, during a wet season, badly blighted. When the weather turned off dry the blight would stop without any cutting-out at all; and if it continued dry, trees would sometimes do well, the blight having been checked completely.

Some years, if the spring was dry, the trees would be covered with blossoms, and bees would be busy from morning till night every day on bloom. A Bartlett and Kieffer, right side by side, bees working on both busily, the Bartlett would blight, and the Kieffer be perfectly free. According to the theory that bees are the chief agents in spreading blight, the Kieffer would be thoroughly inoculated with the bacteria; but if Kieffer is planted in rich soil it will blight. Major Holsinger, an extensive fruit-grower in Kansas, and an able writer in the *Western Fruit Grower*, has about 4000 Kieffer pear-trees, some planted 18 years. They are practicaly free from blight, although Bartletts and Lecontes have blighted to death in his orchard. Now, why did not the Kieffers blight? Because, not being over-stimulated with nitrogeneous fertilizers, they have been so far practicaly immune to blight. In the East we hear no complaint about bees spreading blight. Why? Because land is not so new or rich; but in California, a State which is remarkable both in climate and soil, which causes all trees to make rapid growth, these trees have been planted by the thousand, largely Bartletts. With the climate and soil favorable to blight, and then bad-blighting varieties planted, could any one wonder at their having an abundance of blight? California is remarkable for fine fruit, but the wrong place for pear-growing; however, if they plant varieties not so apt to blight they may succeed; but not without bees to pollenize the blossoms.

The *National Fruit Grower*, of St. Joseph, Mich., for Jan., 1902, says that the blight bacteria was first announced in 1880 by Prof. Burrill, who said trees may be inoculated by the aid of insects; but as the germs float in the air the mischief may be done by the wind. Prof. Waite says the germs can live only in a liquid or semi-liquid. I believe both are right to a certain extent. Thus, the germs can live in the air if moist, although air is not a liquid; but in a dry time they can not, hence we find moist weather so favorable to the spreading of blight. Prof. Arthur says, as the disease progresses the germs exude on the surface, and the gummy substance thus produced is washed off, the gum is dissolved and the germs set free, and washed into the ground. The germs multiply there in rich mold, and grow all winter or year after year. In a dry time the wind takes up the germs in the air, or they may be taken up by simple evaporation. I will add this: That not in a dry time but in a wet time they will be taken up by evaporation or otherwise, and float in the air from tree to tree, and inoculate only such trees as have an over-supply of sap or unnatural growth; hence I say the pear, being a very rapid grower on only moderately fertile soils, if stimulated by barnyard manure or any fertilizer containing an abundance of nitrogen, it will cause the tree to produce an unnatural growth, and render it subject to inoculation by said bacteria or germs. I also claim that by so stimulating pear-trees, especially of bad-blighting varieties, these same germs will originate without any inoculation whatever. This I have proven to my own satisfaction and by my own experience; and I have my own orchard free from blight, though blight was all around me, to prove my theory correct so far. However, I say Prof. Waite is a very good and able man and a friend to the bee, and I feel sure he will finally solve this question; and when it is solved, I feel sure the bees will be exonerated from all blame. It has been charged with many crimes, but has always got a final verdict rendered in its favor.

After having read carefully all I can find on blight bacteria, I have yet to see a single case where a bee has been examined and found to carry bacteria. So, let us not pass judgment on the bee until all the evidence is in, both pro and con. So far all evidence against it is purely circumstantial and light in weight as experience shows; for in a season of fine dry weather, when the bees are permitted to work on blossoms all through bloom, and if weather continues dry, blight seldom spreads at all; but in wet seasons like last year, when the bees are prevented from visiting the blossoms, much blight may be expected.

Williamsfield, Ill.

[You suggest that, by stimulating pear-trees of bad-blighting varieties, pear-blight can be induced in a tree without any pear-blight germs. If the blight is due to a microbe—and all scientists, I believe, agree to that—then the disease could never be induced without its presence. There may be something, however, in your statement: and that is, that the germs, being ever present, will be more apt to develop in their latent state when the pear-trees are stimulated in an over-productive soil; that is to say, favorable conditions will make the disease possible.

You say you have read carefully all you can find about blight bacteria; but "I have yet to see a single case where a bee has been examined and found to carry bacteria." It was that same Prof. Waite, I believe, who found the germs of bear-blight on the tongues of bees; and while Prof. Waite is a warm friend of the bee, he thinks he has established one of the sources of the disease, or, rather, of its spread. But Prof. Waite might be mistaken, although I think that, in all fairness, we should assume he was probably right, because he is a scientist that stands high.

I think I can agree with you, however, that bear-blight is not propagated by means of the bees nearly to the extent that has been claimed; and the awful spread of the disease in Central California was not as much due to the bees, if at all, as it was to other agents, as, for example, ants crawling all through the diseased juices, scattering the virus over the healthy twigs of the trees. The very fact that young trees that have never been in bloom, and which the bees have never visited or been near, are just as badly blighted as the old trees, goes to show that the sources of the disease are due to some agency outside of the bees. As ants are very numerous in warm countries, it is reasonable to assume they play a very important part in the spread of pear-blight in California.—Ed.]

ORANGE-BLOSSOM HONEY.

In Some Localities it can be Depended upon for a Honey Crop.

BY JAMES H. THOMPSON.

I see in Gleanings you are bottling honey. It has always seemed to me that the honey from orange-blossom would answer well for this purpose, and also make a nice blend.

I have had bees since 1894, and, except one year, have always had orange-blossom honey. I should have had some that year, but my bees were not in condition to gather it. In fact, if it had not been for orange-blossoms I should have lost bees in many of these dry years; so I am convinced it is as sure as any other honey in any place.

I once saw an item written by Frank Benton, saying that orange made very nice honey, but that it would never do to depend on it. Well, perhaps so where he was; but here it is on irrigated land, and the weather is all there is against it, though it is better, of course, sometimes than at others.

Orange-blossom honey granulates; but in my retail trade I find more people who like the granulated better. I have customers who buy it and keep it until it does. Eastern people come here from white-clover regions, and tell me they never ate better honey.

North Ontario, Cal.

IN MEMORIAM OF THE RAMBLER.

His Last Hours and his Life History.

BY E. R. ROOT.

John H. Martin was born in Hartford, N. Y., Dec. 30, 1839, and died at the Hospital Reina Mercedes, Havana, Cuba, Jan. 13, 1903. About a month ago he was seen by our friend Mr. Danzenbaker, at his cabin in Taco-Taco. At that time he appeared to be reasonably well, and seemed like the John H. Martin of old, bubbling over with his effervescing jollity and kindly good nature. But little did he think then that the end was so near. Soon after, the Rambler told Mr. Moe, one of his neighbors, that he was not well, and that he would have to go to Havana, to some hospital where he could get the best care. Mr. Danzenbaker, Mr. de Beche, and others, called on him every day thereafter, only to find that he was a very sick man. He began to rally, and seemed better until pneumonia took hold of him, with the results above stated. Mr. Danzenbaker, who visited him during his last hours, writes concerning him:

> Mr. de Beche and I went together to see him. He seemed so much better, and so hopeful, that we both thought he would soon be able to sit up. He again told us that it seemed too much for us to come every day; but we assured him we felt it a pleasant duty to come and see him gaining so nicely.
>
> Monday, Jan. 12, Mr Hilbert (Mr. A. I. Root's Michigan neighbor) went with me to see friend Martin, that he might have a clear knowledge of his condition to report to Bro. Root, as he was going to him next day. We found him suffering severely from pneumonia, his breathing being fast and painful. He was glad to see us. As I took his hand for the last time he seemed to realize fully the gravity of his condition. The nurse requested us to be brief, as he was very weak. As I bade him good by I told him I would come again the next day, and he replied, "All right." That was the last word that he uttered to an American except his faithful nurse. It was then 8 P. M Two hours later he was delirious and unconscious till 7:30 P. M., Jan. 13th, when the kindly genial spirit of our dear friend passed on to a higher life, free from sickness and sorrow for ever. He was very much stronger than many of us. Who will be the next?
>
> Havana, Jan. 14. F. DANZENBAKER.

Thus our friend has gone to meet that dear companion his wife, from whom he has been separated these many years. Notwithstanding the light vein of humor that pervaded his writings there was in his heart a cloud of sorrow that seems never to have left him entirely—sorrow for the long-lost loved one of his younger days. Mr. Martin was an earnest Christian, and we have every reason to think he has gone to meet that dear one, where fever, where sorrows, where pains, where heart-longings never come, and where life blossoms out into full fruition.

Mr. Martin began writing his Rambles in June, 1888. He sent us a batch of three or four articles, giving an account of visits among some of the prominent bee-keepers of Northeastern New York. There were some rude pencil-sketches representing himself and his hosts, and in the note accompanying he said he doubted whether we could use the stuff or not. After reading the manuscript through I remember writing him that he needed to make no apologies—the articles were good, and had been passed in to our printers. The rough sketches, a prominent feature of the Rambler articles from the very first, were turned over to R. V. Murray, of Cleveland, to work over for publication. Little did I know then that he would keep on writing for us, traveling clear across the United States, and finally land in Cuba. But such was the beginning of his series of Rambles.

JOHN H. MARTIN.

Mr. Martin gradually widened the circle of his visits (around Hartford, N. Y., his old home), taking in some surrounding States. As time went on he finally wrote us that he had an itching to go to California, and asked if we had any choice as to which portion of the country he should travel through before stopping at the Pacific coast. Our preferences were given, and the trip west was begun.

Our older readers will remember how interesting these articles were. He cartooned all the fads and foibles of bee-keepers as he visited them. He was always depicted with a camera, an umbrella, stovepipe hat, striped pants, and long frock coat. Like "innocents abroad" he was constantly blundering into new fields at unexpected times, and how his visits were received he graphically portrayed in these columns. I should like, if space permitted, to give a few samples from his humorous writings, but space forbids; but a few illustrations that were worked over by our artist, Mr. Murray, will give some idea of the character of the Rambler and his writings as he went abroad over the land with his pencil and kodak. Sometimes, as will be seen, fortune smiled on him, and sometimes he "struck it rich;" but sometimes the cruel hand of fate rested heavy on him.

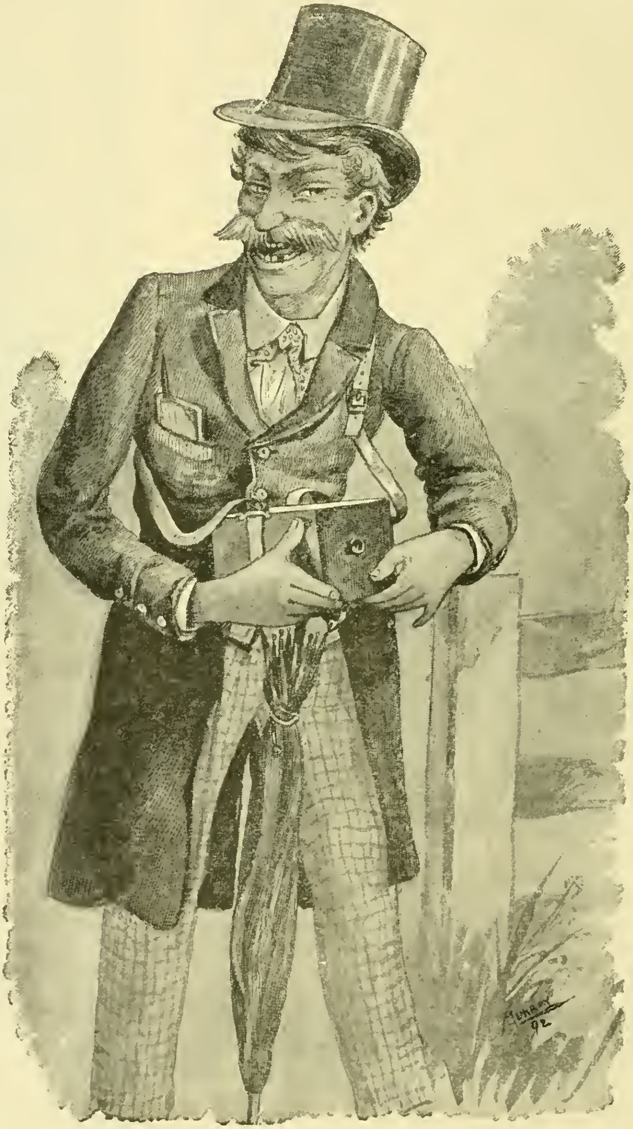
When he arrived in California he went through the length and breadth of the land, and everywhere he went he made friends. His caricatures never offended, but, on the contrary, they set forth some real conditions as they actually existed, showing bee-keeping as it was in the great West. In my late trip through California I everywhere heard kindly words spoken of his writings; and I learned how true and faithful all his descriptions and portrayals were.

Perhaps it may seem a little inappropriate to put in an obituary comic caricatures of the man who has just left the activities of this world; but the natural humor of his make-up were so intimately interwoven with his real life that they can scarcely be separated from his history. There were hundreds and hundreds of cartoons made. but we reproduce only a few of them as specimen samples of his work after it came through the hands of Mr. Murray. The Rambler would outline the sketches, and Murray put them into form.

Mr. Martin, although he was known to the bee-keeping readers as a rambler, would between times settle down in a little cabin all alone by himself in the mountain or on the plain, where he could manage from 300 to 400 colonies. He seemed to love solitude and nature. He loved the bees; and when not actually rambling he would be getting in crops of honey. Sometimes he was successful, and sometimes not. Our artist has shown him when the fates favored him and when they were against him.

While in California he wrote that illustrated serial further depicting California life entitled Bee-keeper Fred Anderson; or, the Mystery of Crystal Mountain. It was a story of no mean order, and elicited the praise of hundreds of our readers.

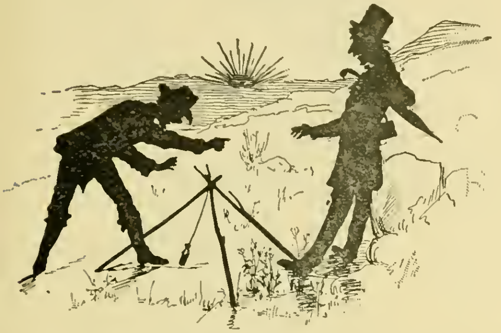
In the summer of 1901 Rambler wrote he had another "itching," and that was to go to Cuba, and asked what I thought of a trip to gather up materials for Rambles. I wrote back we should be very glad to send him; but we feared the climate might not be as agreeable to him there as in California; that, while the absolute temperature might not be greatly different, the humidity, mosquitoes, etc., might make living very uncomfortable if not dangerous. I



THE RAMBLER IN CARICATURE.

urged him to go, but suggested that he stay only during the winter, and go back late in the spring or early summer. At that time he was at Reedley, Cal., where he was taking care of the bees of J. C. McCubbin. His apiary in Southern California had not done well, and he had, therefore, gone northward where the seasons were less uncertain.

He went to Cuba in November, 1901. It was not long before he became interested in the possibilities of Cuban bee-keeping, and decided to start an apiary. He purchased 100 nuclei, as I have already related, increased them to 300, and procured a large crop of honey besides. I was not aware that the surrounding conditions were so unhealthy, and probably he was not. But the dreaded malarial mosquito in the locality apparently got in its deadly work, and the end came all too soon.


DIVINING FOR SILVER.

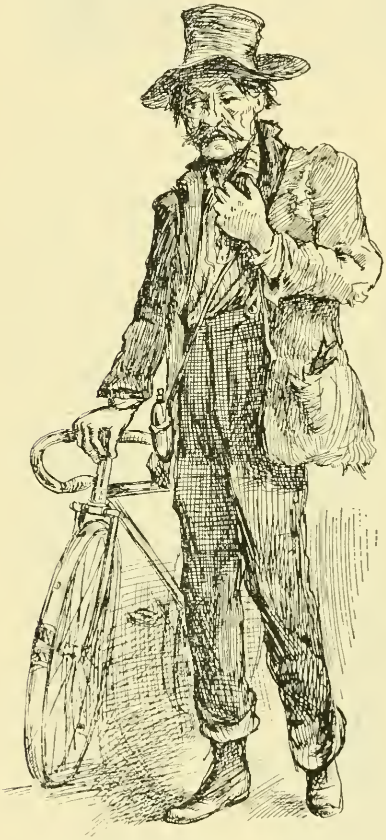
NO RAMBLER ALLOWED IN HERE.

The last correspondence I had with Mr. Martin was to the effect that the pressure of work would not permit him to go out and get more material for rambles. but that he would prepare a series of articles telling something of his experiences in increasing 100 nuclei to 300 colonies, and how he managed last summer to secure that big crop of honey. And this reminds me that Mr. Martin

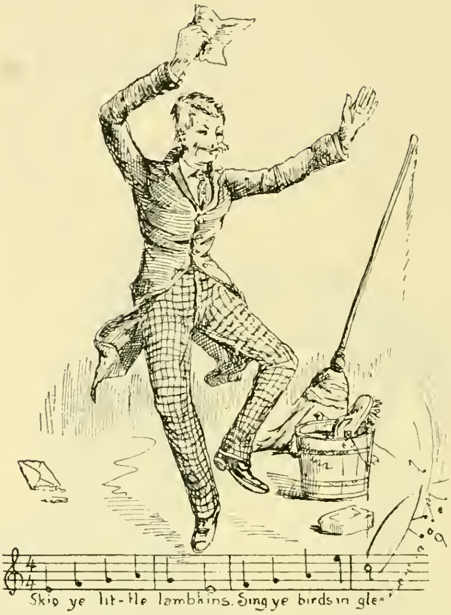
OUR CLA(I)M
$
GOLD
Struck it Rich
CLEANINGS
THE DREAMER

was a genius, handy with tools, and an adept at contriving. When I looked through his den in California I was surprised at the number of little devices he had made.

None of his inventions ever came much into prominence, for the reason that he was not a man to push any ideas of his own. But I recall a glossometer that he made, for he had been working on that problem when a comparatively young man — the problem of measuring bees' tongues — for he early saw that some bees could reach further than others; and the result was, he made perhaps the most perfect measuring-instrument that was ever devised. It was described and illustrated in our issue for May, 1882. Another invention of his was a honey-strainer which had more than ordinary merit; but owing to the difficulty of making it in a wholesale way, at a price that would be in the reach of all bee-keepers, we did not put it before the public. A little later, as our friends will remember, we illustrated and described his Rambler jouncer — something which I consider useful and really good. It is a machine for jarring bees out of supers when bee-escapes are not used. We made a few of them, and tested one of them ourselves, and found that the jouncer was all that Mr. Martin had claimed for it.

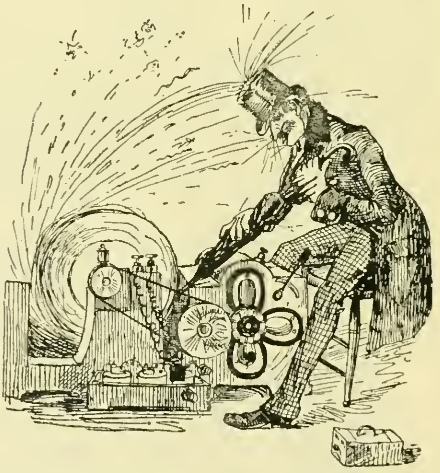


NO HONEY; RAMBLER IN HARD LUCK.


Skip ye lit-tle lambkins. Sing ye birds in glee

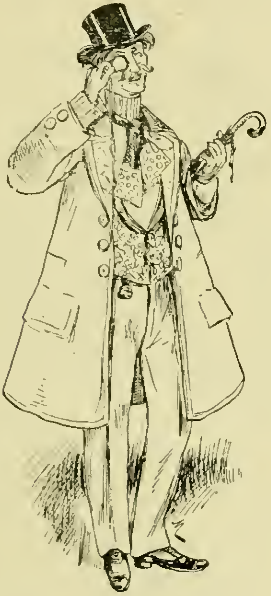
RAMBLER'S EXULTATION; FORTUNE FAVORS HIM.

Mr. Martin had told us in some of his last letters that there were some inventions which he wished to show to the public, and these were to be illustrated and described in a series of articles which he expected to write when he had a little more time. But death caught him, and we shall never know what these later ideas were.



THE RAMBLER'S SCINTILLATIONS; HOW HE GRINDS OUT HIS THOUGHTS.

Perhaps no single writer who ever wrote for GLEANINGS ever called forth more praise from our subscribers than the Rambler. His serio-comic writings, filled as they were with valuable hints, and the exact portrayal of every locality through which he traveled, made him not merely a funny man, but a dignified correspondent who could and did give us much of value through his writings. While GLEANINGS mourns his loss it mourns it no more than every subscriber who has followed him through these years; and when the news was flashed back from Cuba that the Rambler was dead, I felt as if a near and dear friend had passed away; and I never met any one who had come in contact with the Rambler who did not hold him in exactly the same high esteem. When I gave the news to our artist Murray when in Cleveland last, it seemed like a severe shock to him; for Murray and the Rambler have been in close touch with each other for about 25 years. When they met for the first time in Cleveland, in 1891, they were like old friends, kindred spirits that will be forever kindred as long as time lasts.



STRUCK IT RICH AGAIN; "DO YOU THINK THEY KNEW ME? NAW!"

The funeral of the late John H. Martin was held from the Baptist church at Hartford, N. Y., his old home place, Sunday, Jan. 25, at 11 A.M. The other churches of the town united in the services to pay respects to his memory. Rev. J. A. Parker, of the Congregational church, of which Mr. Martin was deacon, preached the funeral sermon, assisted by Rev. H. W. Hakes and Rev. H. E. Hoyt. The four deacons and four other friends of the Congregational church acted as bearers.

Mr. Parker chose for his text James 4:14: "For what is your life?" The words were suggested to him from a letter which Mr. Martin wrote to the C. E. society on their 15th anniversary, which was held Aug. 17, 1902. Mr. Martin was at one time President of the Society, and also Superintendent of the Sunday-school for a good many years. His friends laid him in his last resting-place by the side of his wife in Morningside Cemetery. F. A. LOCKHART.

Heads of Grain
from different fields

ECHOES FROM IDAHO; PLENTY OF BEES THERE; ALFALFA.

I arrived here last March to test this country in the line of bee business; and from what I could glean during the past season I pronounce it a good place, although the bees' working season is short but sweet.

As I have for some time been sitting in the background "gobbling" up the good things GLEANINGS has to say, I got so full that I can't well hide any longer; so when you got around to the Idaho travel I found myself in many respects on the same level of opinion. There are only a few items I wish were mentioned differently. One is as to the scarcity of bees, at least for twenty miles west of Boise. I have traveled the breadth of the valley, north and southeast and west, time and again, and I know of no portion of country better supplied with bees than this. I have found for miles along the road every farmer (and many having only twenty to forty acres) has bees, and in the working season the air seemed alive with them, working, swarming, and absconding in every direction, taking advantage of almost any cavity accessible, from the garret to the floor of the houses; and I know of one instance where they took possession of a muskrat hole in a dry ditch bank.

The other item—no danger of the alfalfa all being cut before it blooms. This country is improving fast; new fields are sown to alfalfa, and if a few stands of bees are put there the bees will keep pace with the improvement of the country.

Nampa, Idaho. G. J. YODER.

WHITE CLOVER—DOES IT YIELD HONEY THE FIRST YEAR, ETC.?

Having seen the statement that white clover would not yield honey the first season, I kept a sharp lookout last season to find out the truth. The season of 1901 was very dry all through the summer and fall—so much so that I believe I could have carried in a bushel basket, at one load, all the white clover that lived over—that is, all *I* saw. Last spring was very damp and rainy, which caused an unusual crop of clover to spring up. This was followed by about a month without rain, which greatly checked growth. Still, there was much of this young clover, in favored places, that bloomed and furnished a protracted flow during the summer when not too rainy. This was our only source of honey worth any thing this year. Asters, which gave

MEMBERS OF THE CHICAGO NORTHWESTERN BEE-KEEPERS' CONVENTION.

such a bountiful crop in 1901, did not yield a bit this time; and those in this locality who do not feed their bees will lose most of them. There are no very extensive bee-keepers in this immediate locality; but I believe half the bees I know of are already dead. D. B. THOMAS.

Odin, Wright Co., Mo., Dec. 12.

[Friend T., I have been well aware that not only white clover, but nearly if not quite all the clovers, blossom and yield honey the first year if every thing is favorable. Even alsike has at times made a beautiful show of heads, the very year it is sown. In connection with this I should like to mention that we sowed some lawn grass with a pretty good sprinkling of white clover around our cabin in the woods in August, 1901. It came up strong, thrifty, and wintered without the loss of a single plant so far as I could see. Nothing ever heaves out by the frost in that locality. During the past summer this lawn gave the largest yield of white-clover blossoms I ever saw. The ground was almost as white as snow with the clover blossoms; and, by some hook or crook that I can not explain, there is quite a dotting of alsike. As fast as the blossoms dried up, other blossoms took their place. Our two colonies of bees were just roaring over it all the while. While I am about it I may mention that, after all our white honey was gone, the best one of my two colonies stored 25 well-filled sections of buckwheat, besides quite a number of sections that were not quite filled. I mention this because it is something new to me to get 15 lbs. of nicely sealed comb honey from one colony working on buckwheat.—A. I. R.]

OLD AND NEW COMB; DO NOT QUEENS SOMETIMES PREFER THE OLD AND SOMETIMES THE NEW?

For several issues I have been noticing your discussions with Dr. Miller as to whether new or old comb is preferred by the queen. There are times when a queen will prefer drawn or partly drawn combs of foundation to old black combs, and there are other times when the reverse is true. This matter is regulated entirely by the condition of the honey-flow. When there is a fairly good flow of honey, the colony storing above a living, secreting wax, and pulling foundation, it is then a queen is doing her best, and seems to prefer freshly drawn combs, and at such times (with the more prolific races) I have seen the queen occupy the entire sheet of new comb from wood to wood, even depositing eggs in the short cells against the molded bead on the under side of the top-bar. While the queen now seemingly prefers foundation freshly drawn, old combs will not be deserted, but the brood will have a scattered appearance, and pollen will all be stored in the old combs exclusively, sometimes one or more of the old combs being solid pollen; but let the honey-flow slacken or cease, and the queen will at once return to the old combs, and nothing but a flow of honey, or feeding until waxsecretion begins, will induce the queen to use again newly drawn combs or partly drawn foundation. This I have proven over and often in the past few years. When partly and full drawn combs have been brought over from the previous seasons, these combs have been put in the brood-nest in spring in place of frames of brood removed; and unless a honey-flow was on, these combs would remain untouched by the queen, even passing over and laying in the black combs beyond.

Then, again, it is the custom in the South, where much honey is put on the market in the shape of "bulk comb," to carry over as many drawn combs of foundation as possible. I have seen these supers of new combs stacked on the hives fully covered with bees, but not an egg would be laid in them until the honey-flow began; then it is that the queen will occupy these new combs at once. Why the queen will prefer and use new comb during a honey-flow and will not use any thing but old combs at other times, I can not explain. In the case of Mr. Hutchinson (Stray Straw, p. 971), searching an old black comb in a nucleus for first-laid eggs, I would account for it in this way: It is seldom that a nucleus run for queens becomes prosperous enough to store much honey or build new comb; and there being a vacancy prepared in the old comb, right among the brood, from eggs of the previous queen, it is natural that the queen would occupy this first. If the nucleus is strong with a good field force of honey coming in, I should expect eggs in newly made comb as quickly as in the old black combs.

Beeville, Texas. W. H. LAWS.

[Dr. C. C. Miller's attention is respectfully called to this. It is no little source of gratification to know that a practical queen-breeder — one of many years' experience — has given me no little aid and comfort. Mr. L., I think, explains just the conditions when queens will favor new comb and when not; and it appears to me that his explanation quite dissolves the bitter wrangle between Dr. Miller and myself. Come, doctor, let's shake.—ED.]

SEALED COVERS ENDORSED.

I notice on page 907 Mr. Gill condemns the sealed covers in rather strong terms. I have had splendid success in wintering bees under sealed covers, both in Northern Iowa, where the thermometer registers 30 below zero, and in Ohio, where it seldom went as low as 20, and did not stay at zero long at a time, and the sealed cover has been a success with me in both places Give me a good strong cluster of bees with plenty of good stores of honey, and I would not give any one ten cents to warrant them to winter perfectly under sealed covers if properly packed. There should be a good warm quilt and several inches of good dry packing, with a good roof over all; of course, the sides should be packed as well as the top. Absorbents are not at all necessary to the successful outdoor wintering of bees. Chaff or other packing is not valuable as an absorbent of moisture merely, but rather as a retainer of the heat generated by the cluster, giving it back to the bees during cold spells, thereby enabling them to maintain a tolerably even temperature, the same as is secured in a hot-water incubator by using several inches of sawdust. I winter most of my bees out of doors, and the chaff is always dry, whether I use sealed covers or quilts. When quilts are used I use several thicknesses, so it amounts to about the same as sealed covers.

J. E. HAND.

Wakeman, Ohio, Nov. 26, 1902.

[Our own experiments, covering a period of six or eight years, now confirm us in the belief that sealed covers in this locality, for wintering, properly protected with packing material, give better results than absorbing cushions placed directly over the cluster of bees. Absorbents become damp or moist from the breath of the bees before spring, while the packing over the sealed cover remains perfectly dry. Under it the moisture as it collects will form in drops and run out of the entrance, while that contained in a cushion is a constant menace to the health of the bees.—ED.]

NO BLACK BROOD AMONG HERSHISER'S BEES.

Mr. E. R. Root:—During the past year it was intimated in GLEANINGS that Orel L. Hershiser had black brood in one or more of his apiaries. Accordingly Mortimer Stevens, State Bee Inspector of the fourth division, selected a time most favorable for the discovery of any disease, and called on me to accompany him, that there might be no question of the existence or non-existence of disease in his apiaries; and while I feel that a report should have been sent to your publication earlier, it is but just to Mr. Hershiser to say that, after a most thorough inspection of all his apiaries, we were unable to find any black or foul brood, or any evidence that they had ever been infected.

By direction of the Department of Agriculture, the four State bee inspectors are now conducting a crusade against the adulteration of honey, with good results.

As soon as the statistics can be compiled the Department will send the bee journals the results of the season's work for the suppression of bee diseases.

CHARLES STEWART,
State Bee Inspector 3d Div.
Sammonsville, N. Y., Nov. 22.

[Mr. Hershiser is a very careful bee-keeper; and I should not suppose that black brood would get much of a start in his yard without his knowing it. We are glad to know that the State Bee Inspector finds no trace of it.—ED.]

A CASE OF BEE DYSENTERY WHICH WAS NOT CAUSED BY CONFINEMENT.

Have you ever known bees to be sick because of something they were feeding on? Last spring while on many varieties of wild clover, fruit-bloom, etc., my bees were affected just as the A B C book describes them to become from confinement in winter. I could not observe that they were swollen or distended; but they dropped over my hands and about the hive. Sometimes they exuded a yellowish substance exactly like yellow paint, and sometimes it would be a dark brown. No confinement in my case, as they had been working finely; had swarmed —in fact, it has cast four swarms. I find no mention of it in any of my bee books, hence I ask you about it.

Arbuckle, Cal. HENRY B. JONES.

[This case is a little peculiar; for when bees can fly it is a rule that any tendency to dysentery will disappear. I should be inclined to think it a case of bee-paralysis, for all the symptoms you have named could be applied to that disease, except that I never saw paralytic bees void a dark-brown excrement. The color is usually a *transparent* yellow. It is possible there is something in the fields that bees gather that causes a violent dysentery, even when the weather is warm. Perhaps some of our veterans can give us some parallel cases. If so, let us hear from them.—ED.]

FOUL-BROOD LAW IN IDAHO; UNOCCUPIED BEE-RANGES IN THE STATE.

I enclose a program of our annual meeting, held Dec. 19 and 20. The meeting was very well attended A foul-brood bill was drawn up, pure-food measures indorsed, and a resolution passed to discourage outsiders, intending to engage in bees *exclusively*, from locating within three miles of any association member without that member's written consent. Some of our members have from 400 to 1000 colonies, and they object to the assertion, published in GLEANINGS, that there is abundant unoccupied pasturage here in Western Idaho, in the Boise, Payette. and Weiser Valleys.

One Utah apiarist declares that if we pass a foul-brood bill he will, in his next trip through Idaho, scatter foul-brood honey from one side of the State to the other. He also offered three of our members foul-brood honey to enable them to destroy the apiaries of the would-be bee-keeper. All our best locations are surrounded by more or less worthless sage-brush land. In addition to this, it is *no myth* that alfalfa is cut too soon, with us. Red clover and timothy are much grown here, and do not yield surplus honey. Our crops are usually small, but we are sure of some honey every year. We realize that you intended no misrepresentation in regard to this portion of Idaho, and believe you will be willing to show some of the disadvantages also. If any apiarist desires to come here, let him come prepared to buy land of his own, and to raise alfalfa *seed*. Land here is very valuable—$35 to $200 per acre.

E. F. ATWATER, *Gen'l Mgr.*
Boise, Idaho, Dec. 22, 1902.

[I am glad you are going to make an effort to have a foul-brood law, and GLEANINGS will give you any assistance possible.

Say, if you will give us the name of that Utah apiarist who threatens to scatter foul brood in Idaho, and can give satisfactory proof from several witnesses that he made such a threat, we will publish him to the world. Get his picture if you can. Such a fiend and rascal as that ought to be branded all over the bee world. My own opinion is, he could be held accountable for such a threat, and GLEANINGS will put $25 up to begin the cost of prosecution. I am not sure but this case should be brought before the National Bee-keepers' Association. Such a man should be driven out of the State, or sent to jail, where he belongs.

When the writer went through a portion of your State, he drove over a great deal of alfalfa country where there seemed to be no bees; and I was told there was much more of it in other portions of the State also available for bees. Since then I have been informed that there has been a great rush of bee-keepers to the locality mentioned, and the probabilities are there is no field vacant.

I do not believe bee-keepers in any locality object to having more bee-keepers come to their vicinity, providing that such new comers do not encroach on bee-range already taken up. But there are some who rush into new country, and squat their bee-yards within a mile or so of another yard, that has the reputation of getting much honey. Let bee-keepers take note of the fact that Idaho, *so far as it is settled*, is already dotted over with bee-yards.

But in Idaho, as in nearly every other State, there is a great deal of sage country now desert that will be opened up just as soon as the State and nation put in irrigation-ditches so that this land, fertile as it is, can be made available for growing alfalfa and other crops. If one really desires to get a new location, let him ascertain what fields are to be reclaimed by irrigation. There is no law against being the first one in the field.—ED.]

WHAT MADE THE BEES DIE SO?

I had four colonies of bees, and they have all died since the first of November. The two first were late swarms, and had but very little honey; the other two had plenty of honey. The trouble began early in the fall. Every time that I examined them there would be quite a number of dead bees on the bottom-board, and some litter like bits of comb. When I opened the hives there was about a quart of bees in the cluster which looked very much like live bees except that their abdomens were slightly swollen, and looked whiter than usual. There was no young brood, and no moth-worms. I failed to find a queen in either hive. I should like to have your opinion in regard to what was the matter; and if you know what caused the trouble, what would be the remedy? If I get more bees, would they be liable to take the same disease?

Beaver, Mo. JACOB WIMMER.

[I assume in the first place you are wintering your bees outdoors. There is a possibility that the bees gathered something in the fall that induced early dysentery, although you do not speak of the fact that any of the hives are stained, although I infer that the bees are diseased because you say the bodies are swollen; and that leads me to suggest that possibly they have paralysis or bee palsy—sometimes called the trembling disease. The litter of little bits of comb in the bottom of the hive suggests that mice or some other rodents are gnawing at the combs. Without knowing more of the conditions it is pretty hard to say what the trouble was. It is possible that the hives being in an exposed position, and the entrances large, the bees became chilled, and they are dying from cold.—ED.]

THE BEST METHODS OF QUEEN-REARING, ETC.

1. Is the "Doolittle method" of rearing queens in upper stories above a queen-excluder, and getting them fertilized from the same a success—that is, when there is another queen below?

2. What book has the best method or methods of rearing queens in it?

3. How is the Danzenbaker hive for queen-rearing? J. F. DIAMOND.

Fly Mountain, N. Y., Oct. 10.

[1. No, only at certain seasons and under some conditions. The appendix to Mr. Doolittle's book fully covers this point.

2. This is a hard question to answer. Some prefer the Doolittle method, and some prefer the Alley plan. Both have their good points. But a modification of the Doolittle method as recommended by W. H. Pridgen or by Swarthmore (E. L. Pratt) I would consider an improvement. Mr. Doolittle brought out, or, rather, brought to prominence, the artificial-cell-cup plan. The two other gentlemen have, in my judgment, made improvements to such an extent that one can rear more queens with less labor. Therefore if you wish to get the best "book" on queen-rearing you will have to consult the current literature in bee-journals.

3. Very well adapted for it. In the rearing of queens it is an advantage to have frames a little smaller than the Langstroth; and to the extent that the Danzenbaker frame is smaller or shallower than the Langstroth, to that extent it is better for queen-rearing. But this is not all. The general construction of the Danzenbaker is such as to make a warmer brood-nest—a very important consideration when the clusters of bees are necessarily small.—ED.]

NOTES OF TRAVEL

BY A. I. ROOT.

"OUR OWN APIARY."

How funny it sounds to take that old familiar heading, under which I wrote for so many years! Well, "our own apiary" here in Cuba is certainly the handsomest apiary I ever saw. In fact, it is beyond any of my wildest flights of imagination, away back when I signed myself "Novice." Now, mind you, I do not say it is the best *arranged* apiary, for it certainly is not, especially for queen-rearing; but it may do very well for honey. It is a veritable "White City" of miniature "business" houses. Mr. de Beche planned it, and Mr. Wardell (under some protest) carried it out. The hives occupy a plot of 5×10 rods. There are 10 rows of hives with 50 hives in each row. This brings the hives between three and four feet apart from center to center. Each outside row faces outward, then there are *four pairs* of rows facing each other. The alley between the rows, where the entrances are, is about 10 feet wide; the alley between the *back ends* of the hives is about 6 feet. This gives room for a wheelbarrow to turn round, and plenty of room for workmen to pass. even with a load of stuff. The rows of hives are as "straight as a string," as you see on p. 1023. Nov. 15. The ground in these six-foot alleys is as clean and smooth as a brickyard. The wide alleys are now a beautiful and nicely kept garden where we get our supplies for the table. From the stuff planted six weeks ago we have now lettuce, onions, radishes, string beans, and Irish potatoes almost as large as hen's eggs.

I believe it has been already mentioned that the 500 colonies were, at least most of them, only strong nuclei that had been used last season for queen-rearing. Well, these nuclei built up by December so that they gave 10,000 lbs. of very nice white extracted honey. Now please, friends, do not get wild over this, but remember it is only 20 lbs. per colony, and that nice honey *here* is worth only about 3 cts. per lb. The honey crop so far does not half pay the expense of getting here. The bees fly and get some honey every day; but at this date, Jan. 8, they are getting only about enough to keep the brood going. Without question, there are too many in one spot to give much honey.

I have greatly enjoyed watching them cease flying at night, and starting out in the morning. I picked out the colonies that were first to bring in honey and pollen, and then Mr. Wardell referred to his record and showed me that all I had marked extra had *red-clover queens*. It looks to me just now as if that queen that Ernest made such a stir about by putting a big price on her ($200) may have been worth to the bee-keeping world *thousands* of dollars. More than 1000 of her daughters have been sent into almost as many apiaries, and reports show, almost every time, greater crops of extracted honey. This particular strain is, perhaps, not the best for comb honey.

Since the above was written I have visited the school. About 100 pupils are enrolled, and three teachers are employed. I am told the buildings were put up and the schools started by the United States. The reading-lesson while we were present was about Christopher Columbus, and I could, therefore, follow it to some extent. Surely we of America should have a warm place in our hearts for Spain and her people, out of respect to the memory of *Columbus*, if for no other reason. In another room the teacher had put a sentence on the blackboard, beautifully written. It was, "Las margaritas blancas adornan los campos." With a little assistance from the postmaster I rendered it, "The white daisy adorns the fields." The postmaster, Senor Rodrigo, is the only one in the town who speaks English. Through him as interpreter I had quite a talk with the teachers. No such thing as a *Sunday-school* has ever been held. The scholars sometimes sing in the day school; but the teacher said smilingly they made such bad work of it she seldom tried to have them sing. I got acquainted with the children readily by showing them my wheel, and they showed me their writing-books where they had copied the motto on the board. I am sure it would be an easy matter for one who can speak their language to start a large Sunday-school. Can any one tell me how much has been done in this line in Cuba?

TEMPERANCE AND INTEMPERANCE IN CUBA.

In one respect there are *no* saloons in Cuba; in another, they are everywhere, even in the little towns and country stores. There are no saloons with *screens* in front, as we have them in America. Liquors are sold in broad daylight, and, in fact, in Havana they are mostly sold out on the walk, you might almost call it. I have seen no intoxicated people, and nowhere in the city did I see *crowds* drinking as we see in the saloons in our American cities. Saloon-keepers themselves have admitted that removing the screens would destroy more than half their trade. I do not think the Cubans are very much given to *beer*-drinking. As nearly as I could determine, the principal drink at these places is an imported wine. Every one of these places furnishes drinking-water free. At the terminus of the electric-car line I saw the vender pass out tumbler after tumbler of pure water, and nobody ever seemed to think of thanking him.

CUBA; COST OF LIVING.

It is too cold now (Jan. 9) for much honey-gathering or queen-rearing. We have no thermometer, but our postmaster said it was down to 50 one night, and I think it must have been 45 last night. There isn't a stove in the island that I know of, nor a house with a chimney. Cooking is mostly done with charcoal; but as it costs $1.00 a bushel, we use wood — mahogany. I chop wood to keep warm, until the sun is up. My catarrh, or grip, is all gone except when I get chilled. My wheel is a real comfort. The paths made by barefooted children are very nice for the wheel, and I can go miles through the fields on these paths. I judge they have never seen a wheel before, the way they gaze and gather round me.

Milk is 10 cts. a quart; eggs 3 cts. each; flour 7 cts. per lb.; Irish potatoes 5 cts.; beans 9 cts., etc. Rice and sweet potatoes are the cheapest. Rice is 5 cts., and sweet potatoes, of the *grower*, only about one cent. They are away ahead of any we have at home. I think I could eat them every meal, with a good relish. Meat of all kinds, pork, beef, venison, etc., is all 20 cts. per lb.; chickens about 30. Oranges and bananas are about a cent apiece. Many things are necessarily dear because they don't keep in this climate, and consumers therefore buy only a little at a time, say 10 cents' worth. Grocers seem to prefer to sell this way, and then they can *guess* at the proper amount for 10 cts., without the bother of fussing with scales. I think an American store with American ways of doing business would be a big success; but, of course. the storekeeper would have to speak Spanish.

Right in the streets, near the stores, and, in fact, close to the schoolhouse, we see children four or five years old stark naked. It saves clothing, and then they are so easy to wash. Some good woman should start a "mothers' meeting" among these people, to correct this and similar things. Who will undertake it?

I fear I have made too much of the objectionable features of Cuba. The climate is beautiful at this time of year, and the people are exceedingly friendly. Theft or crime of any sort seems very rare. Every thing is left outdoors, but so far we have not missed a thing unless it is the little slates on the bee-hives. The small children took some of these at first. Of course, they did not realize the mischief they made.|

CUBAN HOMES.

I might almost say "Our Homes," or, rather, "Our *Home*," for it is now a Cuban home. "Our" means Mr. Wardell, whom most of you know about more or less; Stephen N. Green, a Medina boy who has been several years one of our office boys in Medina, but who took a notion to study Spanish a year or more ago, and who was, therefore, chosen to go with Mr. Wardell. Well, besides these two your humble servant has been there for a week or more an inmate of this Cuban home. The most of these homes, at least those in the little town of Paso Real, are built of poles from the woods, covered with leaves from the palm-tree. A building 9x12. that we had made for a kitchen, cost, entire, $18.00. A couple of men brought the material and did the work, so the house was ready to "move into" for the above sum. I might add, too, that they did it on *Sunday*. They didn't get it all done the *first* Sunday, so they waited until the *next* and then finished it. As there was nothing said, when the bargain was made, about working on Sunday, we could not very well complain. It might have been a little difficult, also, with Stephen's command of Spanish, to explain *why* Sunday was any different from any day—that is, to *these* people.

Posts were first driven into the ground at the four corners; then poles were set up and down about every two feet. Across these, horizontally, still lighter poles were firmly tied with tough bark. These horizontal poles were about 15 inches apart. Now for weather-boarding, imagine a great corn-husk, large enough to wrap up a small-sized man. This comes off the palm-tree where the leaf is attached to the trunk. These husks are laid out on the dewy grass over night until they will flatten out on the walls of the house. To keep them flat, another horizontal pole is tied on the outside, the "big husk" being very firmly tied between the two slender poles. The roof is made of palm or palmetto leaves, very much as we make a thatched straw roof in the North (see picture on p. 1023, issue for Dec. 15). The roof projects a good deal all around to shade the walls; and where there is a porch, it goes over the porch also. To get air, the walls seldom go clear up to the roof; but no storm can beat in, as the roof goes over far enough, and comes down low enough to prevent this. There are no chimneys. The smoke from the fire used in cooking goes right through the porous roof; and I have never seen a smoky apartment in Cuba, even when a fire is first started. We have all this *ventilation* every day in the year, mind you, and I for one like it. There isn't a pane of glass in a house in the town except the schoolhouse, and I almost believe it would be better for the pupils without it there. There are shutters, to be closed in bad stormy weather, but at no other time. Iron rods are across the store windows, to keep out thieves, but I have never heard of any stealing. The floors are usually just the ground tramped hard. When the broom is used often it does not look so *very* bad. I think this dirt floor is cooler in hot weather than a board floor. There are no stoves. Cooking is mostly done with charcoal in an iron bowl made for the purpose. This bowl has a sort of standard, with an opening to let the ashes out, and to let in air. We burn wood, cut up short, in these iron bowls.

STINGLESS BEES, AND BEES IN LOG HIVES IN CUBA.

This morning I visited on my wheel Mr. Ciriaco Gutierrez, three miles away from our place. Although Mr. G. has *100 oxen* pasturing in one field, and other things on his farm to match, he lives in such a house as I have described. Out under the eaves he had several boxes of stingless bees. These boxes are 8 inches square and 20 long, made of ½-inch boards. The honey and pollen are stored in cells, or, rather, bottles of wax, set upright with the top open. These cells are large enough, some of them, to hold, say, one or two tablespoonfuls of beautiful honey. They are about the shape and size of a pullet's egg, small end up. When filled they are sealed over. The brood-comb is a separate affair; and as the bees are smaller than common ones, the cells are smaller, and the comb is *horizontal*. Mr. G. was kind enough to make us a present of a hive; and while I write, (out of doors) they are carrying in the honey and pollen at a big rate, close by my head. We have just opened their hive and sampled their honey; but they made no objection of any sort. They keep the entrance to their box contracted by propolis so only one bee can get in or out at a time; and woe betide the insect of any sort that presumes to come near the sentinel that always guards this doorway day and night. Should a robber Italian presume to come near. a dozen dart for him with lightning rapidity and fury. Although they can not sting, they have very powerful jaws to bite. Now, then, you who would like to keep bees, and raise your own honey, but fear the stings, here is your chance. Of course, you will have to come to Cuba. for I do not think they will stand even Florida's cold weather. How much honey can they gather? Mrs. G. said they would give perhaps two quarts of honey per colony per season.

Mr. Gutierrez has also the common black bees, about 25 hives; but they are mostly in horizontal hollow palm logs open at each end. Many of the hives are full of honey, and beautiful white combs are hanging out covered with bees and glistening with new honey. I touched the beautiful comb with my finger, and, remembering I knew "white" in Spanish I said "blanco," and the children who were showing me around were delighted to find I wasn't *altogether* deaf and dumb. If one wanted only honey for his own table, I don't know but that a couple of colonies in hollow logs, in Cuba, might fill the bill pretty well. When the bees are building comb out in the open air it certainly looks very pretty. Some of the hives were just a palm husk (such as I told you about) rolled up, and one hive was just a sheet-iron cylinder. It seemed to make no difference to the bees.

El Nuevo Testamento de Nuestro Señor y Salvador Jesu Cristo.

Dear friends, I am very, *very* happy tonight. I did not *expect* to be happy, and I have not *been* happy, to tell the truth, even in this land of perpetual summer, and so this wave of peace and joy is a surprise to me—yes, one of my "happy surprises."

I told you some time ago that I felt God wanted me in Cuba; and when I saw the thousands who were growing up in ignorance and darkness I thought I could see *why* God wanted me in Cuba. The children seemed glad to see me, and, for that matter, the parents also have seemed glad to see me; but what can I do, not knowing their language, and, as my friends accuse me, being too old to learn? Then I inquired if there were not *books* and *papers* for the children and parents, such as we have in such great abundance all over America. But I was told there were none; and on looking about in the homes I have found none. The children sometimes *try* to sing, but not one of them has ever heard a Gospel Hymn, and I fear they have never heard of the gospel *at all*. I asked about missionaries to Cuba, but was told Cuba had none and *didn't want any*. People told me if I encouraged an acquaintance with the children they would be all over us all the time, and steal every thing. I remonstrated, and was laughed at for my faith, as my dear old mother was laughed at years ago for *her* faith in humanity. Perhaps I should explain that there was a *little* ground for fearing the children. When these little friends had learned to smile, and to shake hands with me, although they could not talk, they naturally came about our apiary, and the little slates Mr. Wardell uses were very attractive in their eyes, and I fear some of them were thoughtlessly taken. Now, the value of a slate is a trifle compared to losing our record in rearing high-priced queens. We could not explain the harm they did, for we could not *talk* to them. I finally, however, took a little slate to the schoolteachers and asked them to explain to all the pupils the trouble it must make if they even *picked up* a slate, and I *think* there has been no meddling since. Of course, I made inquiries of every one I met in regard to what had been and was being done to teach the children, but got little encouragement. All seemed to decide they were "no good;" "education would make them more tricky and dishonest." etc. A learned man, and a prominent physician, in Havana, a man who uses neither coffee, tea, tobacco, nor stimulants, a man of means and of high position, said in substance:

"Mr. Root, if you should go on as you propose, for about *four generations*, you might get a child here and there who would tell the truth, and *then* you might make Christians of *some* of them."

I groaned in spirit while I tried to explain to him that our way was to labor first to bring them to "Jesu Cristo," and *then* telling the truth would take care of itself.

Mr. Hilbert (the strawberry and chicken man of Michigan), when he landed here was much inclined to be severe on the Cubans; and, dear friends, I presume I could fill our journal with complaints of them; but God forbid that I should waste my time in dwelling on or telling of the sins of *any* people. We are all responsible, more or less, for all that is wrong. Well, Mr. Hilbert and the rest laughed at my faith; but still they admitted it *was* a praiseworthy work to be laboring to make the world better. Mr. Hilbert, however, had been with us hardly 48 hours before he confessed we had some *good* neighbors. He visited the man who had the stingless bees; and although they could talk only by signs, and a little aid from Stephen, he came back with praise of this man that wasn't stinted either.

Last Saturday night we got off the train at Havana while it was raining. On account of our *wheels* we could not get to our hotel, either by cars or cab. We didn't find anybody for some time who could talk our tongue enough to guide us. Finally a very gentlemanly well-dressed Cuban who could talk English a little said he would go with us. Mr. Hilbert offered to pay him, but he declared "not a cent." This man went with us clear across the city; and then, as Hilbert *declared* he could "make it alone" the rest of the way, he consented to turn back. We were soon lost again, however; and just as we decided we *must* bother somebody else with our troubles, this true friend reached us on a run (in the rain). He had been watching us from a distance, fearing we might have more trouble, and this time he piloted us to our hotel door. I wish I had this man's address, so that I might let his kind act be known.

Now you can realize somewhat how it pains me to hear my brother Americans condemn so severely the whole of the Cubans. Even though I can not talk to them I have learned to love them already. I like their musical speech; I like their extravagant gesticulations, which are not only expressive but often possess a degree of grace. One little girl at Mr. Moe's (of Candelaria) showed such an aptness that I told Mrs. Moe she had talent for elocution; and then Mrs. Moe explained that her brother was a lawyer, and had been giving her lessons. At my request she gave a recitation she had once given at their "Fourth-of-July" celebration. Afterward she read some passages of English that Mrs. Moe had taught her, and did it quite well; and Mrs. Moe said she understood the meaning of what she read. Now, this child is thirsting for knowledge, and there are thousands like her. Sunday I found a Congregational church only a short walk from our hotel (71 Prado), and the pastor gave me a lot of little papers illustrated, and in Spanish, by the *American Sunday-school Union*, so you see I was right when I declared there was literature for these children in their own language, if we could only get hold of it; and how shall it ever get to them unless we bestir ourselves, hunt it up, and put it *into* their hands? There is one child especially who lives near our apiary, and she and I have become great friends. I can see in her the promise of a noble woman if she is led aright. Well, when Stephen told me he saw a cigarette in her childish mouth, it did not discourage me; in fact, it only made me more in a hurry to put into her little hands the story of "Jesu" the "Cristo."

In taking an old friend around to see some of the sights of the city, in a beautiful spot (Tacon St., No. 4), near the water's edge we found a little bookstore that read overhead, "American Bible Society." It almost made my heart jump with joy. In a neat glass showcase, almost out on the walk, were open Bibles, one column English and the other Spanish. A New Testament in both languages is only 25 cts. each. Matthew, Mark, Luke, John, and the book of Psalms were each in Spanish, very neatly bound, for only 5 cts. per copy. I knew this before, or *ought* to have known, that I could get all these helps of the Bible Society, to which I have given hundreds of dollars in years past. But this is not all. A very bright little Cuban woman has charge of the store, and she is doing quite a thriving business in selling Bibles and Testaments, and nothing else. She and I soon became friends, you may be sure.

During the war she went north, learned our language, and was given this position. Said I, "Surely, my young friend, you have given *your* heart into the keeping of the dear Savior, so that you can *rejoice* with every Bible that is sold. Is it not so?"

"Oh! yes," she said. "I love to see people buy these books, because I am so sure it will make them happy."

She urged me to call again, and kindly told me what car to take to get to my hotel.

Thank God! thank *God!* there is *one* spot in this great city of almost a quarter of a million where something is sold that, instead of tearing down soul and body, lifts poor weak humanity from "death unto life."

I got out of the car and sat down on one of the seats in one of the beautiful parks at the head of the "Prado." I opened my Spanish Bible and began to study it. Then for the first time it began to dawn on my intellect that a Christian's best book from which to learn Spanish is the *Bible*. I turned first to the title-page from which I have taken my text. "Jesu" the "Cristo" are to me now words sweeter than music. I opened the book to "San Juan IV.," and read verse 10. One who knows a little of Latin can readily follow a good deal of the Spanish; and then came one of my "*happy* surprises." Reading the Bible in another tongue gives another and often a new view of the meaning. We are so familiar with many passages they seem to have lost their meaning to us. The effort to render it in another tongue throws a strong *searchlight* on the words, if I may so express it; and as I read I became very happy, as I said in my opening words. My mother used to be happy in reading her Testament by *moonlight*. Almost a hundred years later, in a strange city, *I* found great joy in going over the words in a strange tongue. Perhaps I felt happy, too, to think of the little bundle of Spanish books and leaflets I had just forwarded to my friends in Paso Real for their children.

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"*It is a wonder. Our washing is very large and* "*we have always had two women on Monday and* "*one on Tuesday. Our cook and the yard boy* **now** "*do the washing in 4 hours much better than before*"

NEWMAN, Ills., July 5, 1900.

I can testify that the 1900 is the best washer and the easiest-running machine. It will **absolutely clean** the clothes, cuffs, and bottoms of ladies' white skirts better than can be done by hand. The washings that took my wife from 5 to 7 hours to put out by hand, can easily be done in 2 hours.—R. A. SKINNER.

KENSEE, Ky., March 21, 1900.

I did a double washing for myself yesterday and made 65 cts. from my borders, besides all my cooking, milking, and housework. It takes less soap with your machine than in the old way. I have no need of the washboard any more.

MRS. L. A. BARTON.

ONALSKA, Wis., Jan. 4, 1901.

We are a family of 5, and as I had a 3 week's wash it was an immense one. Had it all out in 3 hours and never had nicer looking clothes. I did not even put my hands into the water. I can not too strongly recommend the "1900" washer.

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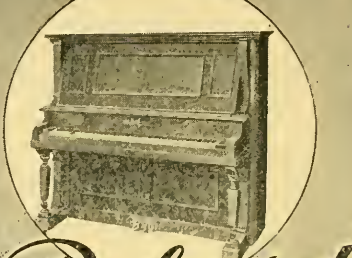

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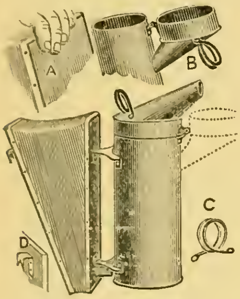
New Goods in Root's Catalog for 1903.

The "A" Bottom-board. This is something entirely new this season. It consists of a 2⅝-inch rim with a tilting floor-board, allowing an adjustment of depth of entrance to suit season or individual preference of user. This bottom will also be found very valuable for cellar-wintering, and for moving bees there is nothing equals it for convenience and safety. Mr. F. A Salisbury, Syracuse, N. Y., a bee-keeper and supply-dealer of over 25 years' experience, says: "The new-style 'A' bottom can *not be beat*. We put up one, and it is *the thing*."

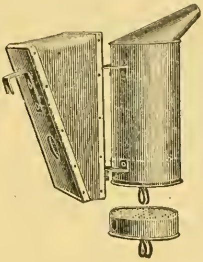
The German Wax-press. This we've improved since a year ago, placing a heavy oak cross-arm above in place of cover-plates. We believe it is perfect in construction.

The Corneil Smoker for 1903 has a new nozzle which is not inclined to topple over at the most inopportune time; this nozzle is supplied with wire-coil handle. The bellows is bound with projected metal bindings which protect the leather, strengthen the bellows-boards, prevent warping of same, and form a very convenient hold in operating the smokers. The general plan is the same as heretofore, but these added improvements make it much superior to any thing we have formerly supplied. Made in three sizes. Prices: Jumbo, $1.25; Standard, 85c; Junior, 65c. Postage, 25c extra.



Super Springs. The supers sent out this season will contain removable springs instead of the stationary springs as formerly supplied.

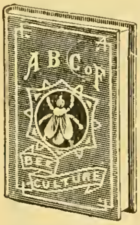
Vesuvius Smoker. This is the name of the new smoker we are prepared to furnish this year, which is entirely different from any thing we have heretofore offered. It is a breech-loading hot-blast, with a removable grate attached to cover. The nozzle of this smoker is fastened permanently to barrel This has the same metal binding as the new Corneil. Price $1.00. Postage 25c extra.



Brass Smokers. We can supply the Corneil, Vesuvius, and the large-size Bingham smokers with brass stoves at 25c each extra.

Other Goods. We are always on the lookout for improvements in bee-keepers' supplies, etc., and will introduce such as soon as we are satisfied of their superiority over the ones now in use.

Agencies carrying a stock of our hives, etc., will be supplied with these improvements in time for this season's trade. If not posted as to where you can buy our supplies advantageously, write us.



New Edition. With the beginning of the new year we announce the revision of the A B C of Bee Culture, which is not only revised inside but has a new dress as well. The 1903 edition marks the 85th thousand. While the book is, in the true sense, an A B C of bee culture, in that it is adapted to the requirements of beginners, it is also a comprehensive X Y Z of the subject, and no veteran can afford to be without it. $1.20, postpaid.

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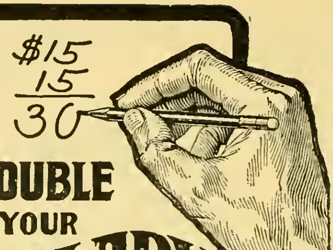

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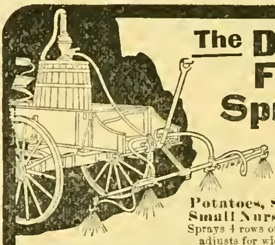

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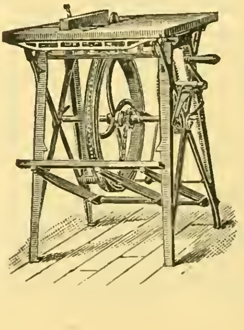

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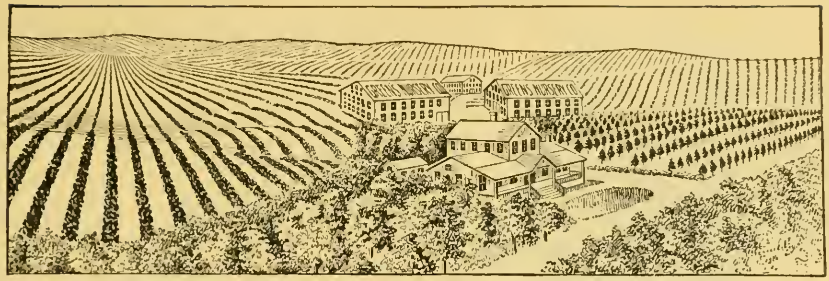

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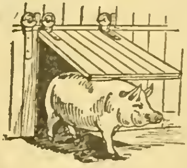

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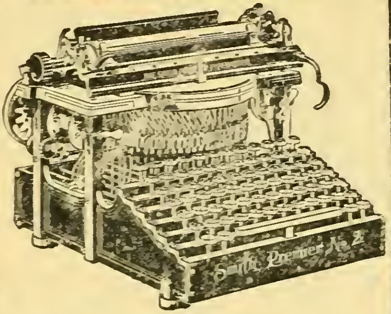

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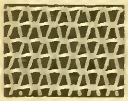

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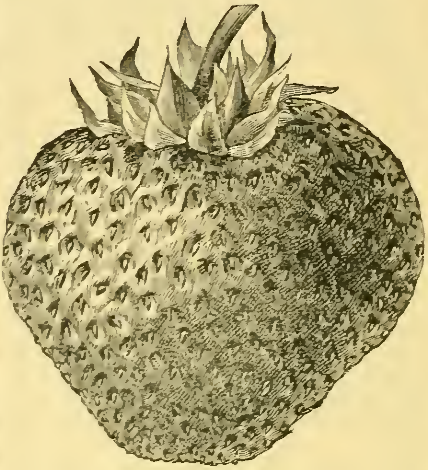

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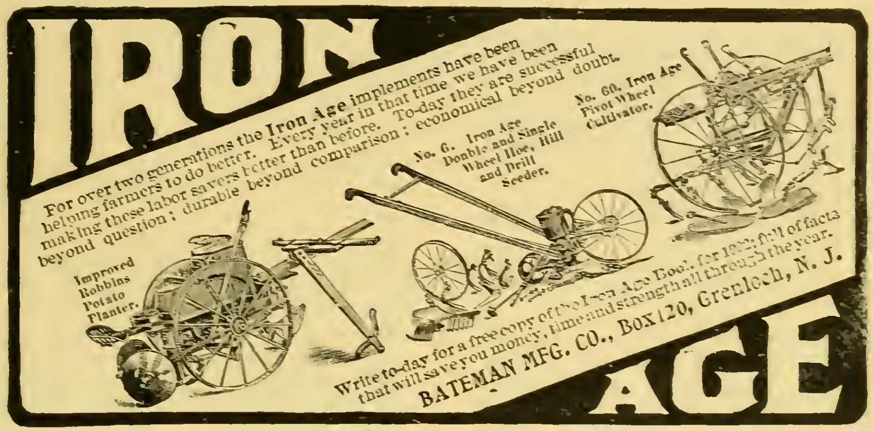
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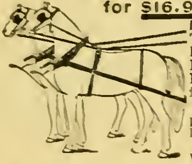

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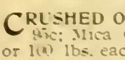

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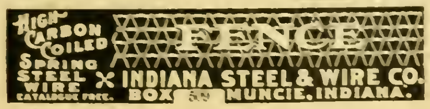

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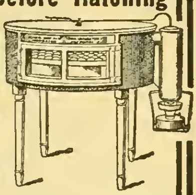

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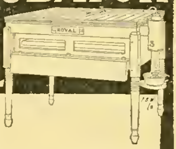

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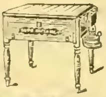

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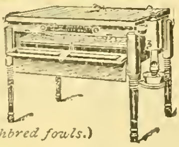

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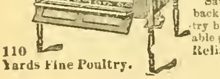

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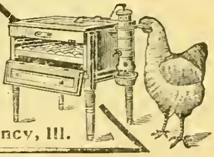

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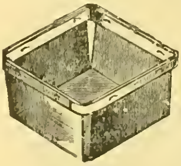

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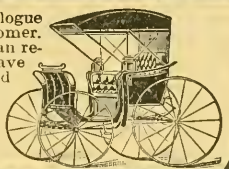

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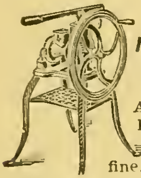

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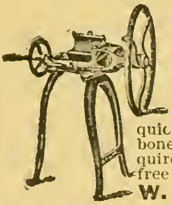

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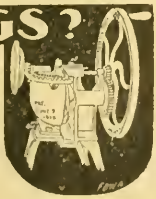

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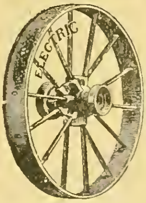

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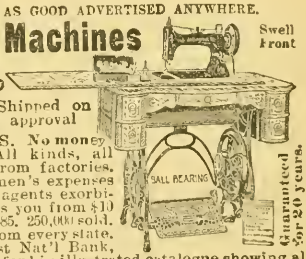

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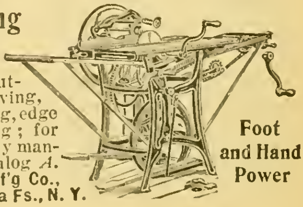

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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

Special Notices By Our Business Manager

SPECIAL NOTICE

SWEET CORN ADVANCED.

There seems to be a shortage of sweet corn; and our stock could not be replaced at much higher prices; we therefore quote, till further notice, pint, 9 cts; quart, 15 cts.; peck, $1.00 bushel, $3.75. Please note, also, that a misprint occurred in the price of Hubbard squash seed. The price of a single pound should read 75 cents.

SUPER-SPRINGS.

Referring to the new-style super-spring shown in our catalog, we have been greatly hindered and delayed in securing wire and tools for bending, and we now find that we can produce more easily a flat steel tempered spring. curled up with a small hook on each end, which will be very much better than either the old or the new wire spring, in that it will more surely stay where it is placed, and is not so liable to get out of place as the wire. It can be very easily inserted or removed. We expect to be ready to furnish them within a few days. Most of the supers which we have sent out so far in this year's shipments have contained the old-style springs. If any wish to try the new we will mail enough for 5 supers for 15 cents in stamps. Then you can determine for yourselves whether you like the new or the old better.

NEW-STYLE SMOKERS.

As will be seen from our new catalog, the standard Corneil smoker, which has become so popular with those who have tried it in comparison with others, has been modified somewhat in design, and two new sizes added—a Jumbo with 4-inch barrel, and a Junior with 2½-inch barrel. We have also added the new breech-loading smoker Vesuvius to our family of smokers. The new dies for these new designs have been completed only within the past few days, and a good many of the standard Corneils of the old style, and of part old and part new, are in the hands of dealers, and will be used in filling orders till they are disposed of. If you must have the latest style you will need so to specify in your order or you may get one of the old as long as any of this stock remains.

COLD-FRAME OR HOT-BED SASH OF CYPRESS.

We are now prepared to furnish sash of cypress, having secured a supply of this lumber for the purpose. It is one of the most durable of woods for outside use, and is largely used for greenhouse bars and sash. It is light and strong, as well as durable. We are changing the dimensions of the bars so that they will shut off less light from the seed-bed. The thickness will be 1½ inches instead of 1⅜, as formerly, with tenons ½ inch thick instead of ⅜ inch. The outside bars are 2½ inches wide instead of 3¼. The sash will still be 6 feet long, but 3 ft. 2½ inches, or 6 ft. 3 will still be 6 feet long, but 3 ft 3 inches wide, instead of 3 ft. 4 inches, and, as regularly furnished, will take four rows of 8x10 glass We can also supply them for 3 rows of 11-inch glass. The price shipped, knocked down, will be 80 cents each; $3.75 for 5, or $7.00 for 10.

We still have the old-style pine sash, 3 ft. 4 by 6 ft., which we will sell at the same price if any prefer them. At the present price of pine lumber they are worth more money, but we will close them out at this price to any who may want them. Glass, 8x10, for sash at $3.00 per box; 5 boxes at $2 85; 10 boxes at $2.70.

Great Poultry Book Free.

Those of Our People who are interested in Incubators, Brooders, all kinds of Poultry Supplies and the poultry industry in general, should send at once for a copy of the new 1903 book—"How to Make Money with Poultry and Incubators." It is published by the Cyphers Incubator Co., of Buffalo, N. Y. It will be mailed free to all of our people who will write to them asking for it. The greatest recommendation we can give this book is to say that it is the best thing the Cyphers people have yet published. It's the only book we know of that treats the whole subject of profitable poultry growing, etc. There are special chapters on the different branches of the poultry business—duck growing, broiler raising, egg farming, winter production of chickens, broilers, etc. These subjects are treated by the best experts in the country. There are hundreds of photographic views of the largest poultry plants all over the United States, England, Germany, Holland, New Zealand and other foreign countries. There is too much that is good to tell it all in this small space. Send for the book. FREE, postage paid during the next thirty days, if you mention this paper.

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J. B. CASE, Port Orange, Fla.

POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. *Sample Free.* 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. **Catalogue** of poultry books free. *Poultry Advocate,* Syracuse, N.Y.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please ; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange stationary gasoline engines 1 to 10 h. p., bicycle motors, and frames for motor cycles, for wood and metal working machinery, worn out gasoline engines, etc.
Twin City Bicycle Co., La Salle. Ill.

WANTED.—Experienced bee-keeper with some capital, as partner in the business, in Cuba.
M B. L., Prado 7, Havana, Cuba.

WANTED.—A second-hand steam engine, from 2 to 4 horse-power. State make and condition, also lowest cash price.
C. E. Glazier, Dover, Delaware.

WANTED.—To exchange a 22-cal. 27 shot Winchester rifle, and an outfit complete for making crayon portraits for a good incubator, bicycle, graphophone, or camera. D. B. Thomas, Odin, Mo.

WANTED.—To sell or exchange for bees or supplies one McCormick corn-shredder, been used one week, just as good as new; and one McCormick corn-harvester, been used two seasons.
C. L. Pinney, LeMars, Iowa.

WANTED.—To sell 125 colonies of bees in hives of 8 L.-Hoffman frames Price, $3.00 each; also complete outfit for 200 colonies at a bargain. No failures in 9 years. Good home market.
T. H. Waale, Sara, Clarke Co., Wash.

WANTED.—To sell 10 bbls. White Bliss Triumph potatoes—a little sunburned or green, but all right for seed—not sorted, $2.00 per barrel; will ship in the spring. J. W Bittenbender, Knoxville, Iowa.

WANTED.—To exchange a large list of second-hand goods, as good as new, for foundation, mill, and extracted honey. Address
Quirin the Queen-breeder, Parkertown, Ohio.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4¼×4¼ sections; made for Pan-American. For prices, etc., address Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. Tyler Bros., Nicolaus, Cal.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. Knapp, Rochester, Ohio.

WANTED.—To sell a 10-h.p. horizontal engine with upright boiler, with pump, smoke-stack, and all connections, for $125.
J. W. Bittenbender, Knoxville, Iowa.

WANTED.—Comb to render into wax; will pay cash.
A. P. Lawrence, Hickory Corners, Mich.

WANTED.—To exchange Angora goats for any thing useful. Ed. W. Cole & Co., Kenton, Ohio.

WANTED.—To exchange step-ladders or common ladders for a tent about 20×40, old or new.
Edward Gigax, Archbold, Ohio.

WANTED.—To print your return envelopes, No. 6, 25 for 10c. The Bee Farmer.
Woodstown, N. J

WANTED.—To sell good catnip seed for 10 cents an ounce, or 3 ounces for 25 cents.
O. S. Hinsdale, Kendricks, Idaho.

WANTED.—Bees in Delaware and Washington Co., N. Y. S. W. Mudge, Glen Cove, N. Y.

WANTED.—To exchange extracted honey for Cypher's incubator, 1901 or 1902 make. I often have a place for a good bee-keeper's boy. Buy and sell bees, and second hand hives wanted.
W. L. Coggshall, R. 12, Groton, N. Y.

WANTED.—Names and addresses of those who want good books or sheet music. Ask for what you want. M. T. Wright, Medina, Ohio.

WANTED.—To exchange a Root foundation-mill, 10 inch, almost new, for offers.
W. H. Laws, Beeville, Texas.

WANTED.—To sell 50,000 well-rooted strawberry-plants, grown from new beds, Senator Dunlap, and 6 other choice varieties, 25 to 40 cts. per hundred; 10 per cent discount in lots of 500. Also eggs from gilt-edge Barred Rocks, and Vandresser laying strain. White Leghorns, $1.00 per 15.
P. Hostetler, East Lynne, Mo.

WANTED.—Bee-man from April 1st to manage home and out-apiaries, with assistance. Write, stating experience and wages required to W. R. Ansell, Apiarist, G. N. Ry., St. Paul, Minnesota.

WANTED.—To sell thick-top L. frames, in flat, from yellow pine, at $8.00 per 1000, f. o. b.
G. F. Tucker, Blountstown, Fla.

WANTED.—To exchange an Odell typewriter and one Clipper bicycle for a good camera or Kodak, observatory-hive, bees, or supplies. Address
L. F. Weaver, Wingate, Ind.

WANTED.—An experienced man to take charge of apiaries. Address with references.
Dr Geo. D. Mitchell & Co., Ogden, Utah.

WANTED.—You to read what A. I. R. says on page 36 of Gleanings, Vol. 31. Order this book at once, and write me for prices on ginseng seed, or other information you want.
A. P. Young, Cave City, Ky.

WANTED.—Two hundred stands of bees in any kind of hives, Langstroth preferred: must be cheap.
J. E. Hand, Wakeman, Ohio.

WANTED.—To sell 260-acre farm, apiary with 75 hives attached; 100 acres in cultivation; generally level and productive; new two-story house, barns, etc; ten miles to county site and station: good community. J. A. Clements, Green Bush, Walker Co., Ga.

WANTED.—To exchange Dadant uncapping-cans for cash, honey, or any thing I can use in the apiary.
O. H. Hyatt, Shenandoah, Ia.

WANTED.—For cash, 250 or 300 colonies of bees in ten-frame hives; extra combs also. Prefer those that have been run for extracted honey in the Southern States. State prices on cars and what you have for sale. J. D. Rhoads, Las Animas, Colo.

WANTED.—Owing to recent death of my husband I want to sell my bees and entire outfit, consisting of 200 colonies of bees now located in three apiaries; two locations on Mangrove Island to move bees to in summer, three boats—including one gasoline launch, all necessary appliances to run for extracted honey. To those interested I will give full particulars.
Mrs. Anna M. King, Wabasso, Florida.

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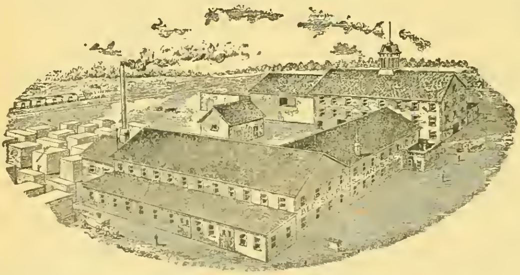

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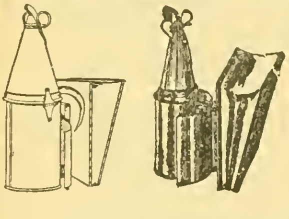
Kretchmer Mfg. Co., Box 60, Red Oak, Ia.



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Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
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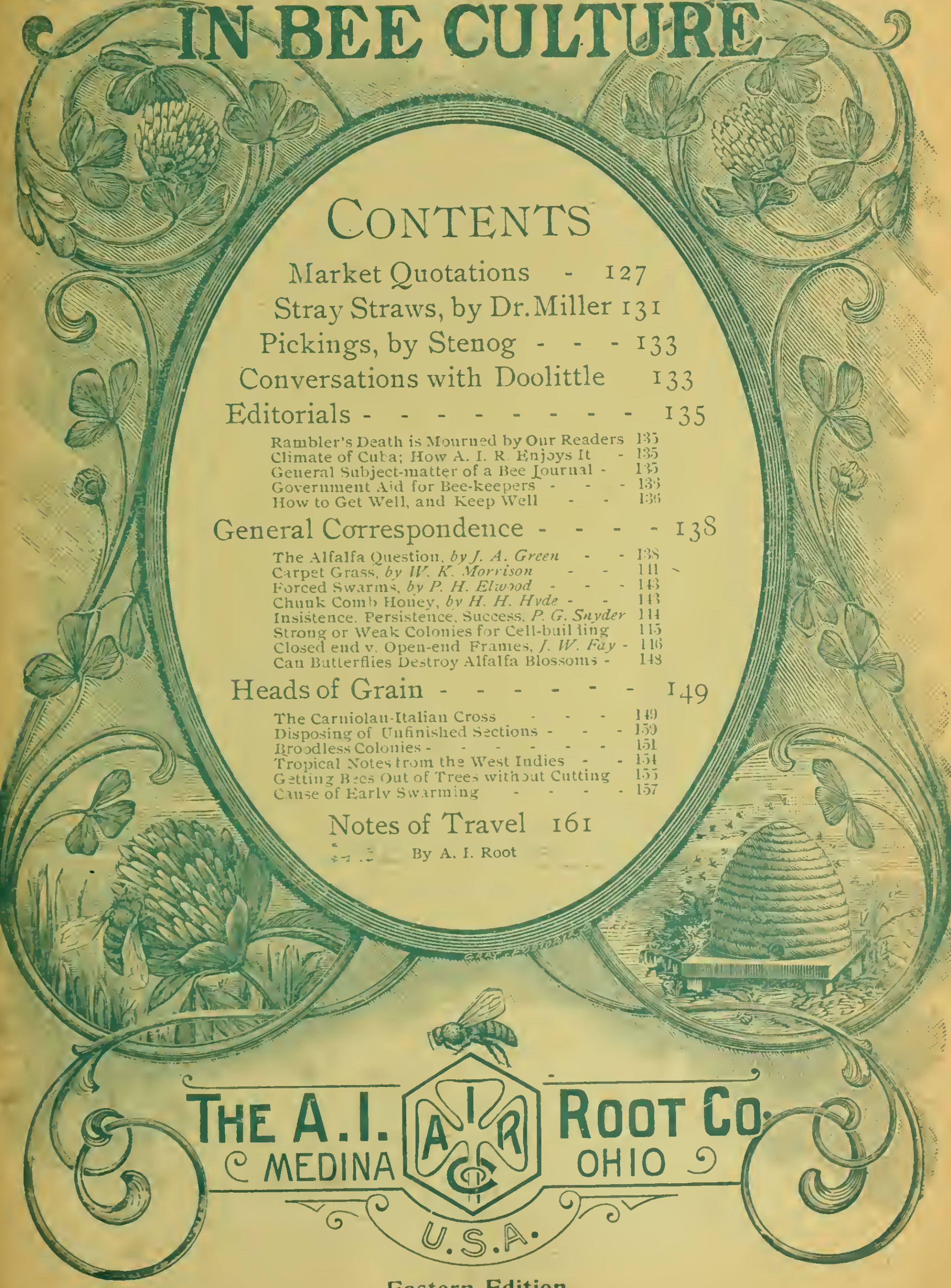
Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI FEBRUARY 15 1903 Number 4

GLEANINGS IN BEE CULTURE



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  By A. I. Root

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Mechanic Falls, : Maine.
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We refer to those successful bee-keepers in Michigan who use Root's Goods. We are the authorized jobbing agents for

The A. I. Root Co. in Michigan.

Send your order to us and save in freight charges and time. Send your name for our 1903 catalog. Beeswax wanted. Early-order discounts, 4 per cent to Jan. 1, 3 per cent to Feb. 15.

M. H. Hunt & Son,
Bell Branch, Mich.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The comb-honey market continues to be draggy, and hardly any demand, and therefore prices have weakened. Fancy white clover sells for 15@ 5½. For amber there is no demand. The market for extracted is fair, and prices rule as follows: Amber, 5¼@5½. By the barrel in cans it brings a little more; alfalfa, 7½; white clover, 8@8½. Beeswax, 28@30.

C. H. W. WEBER,
Feb. 7. 2146 Central Ave., Cincinnati, O.

CHICAGO.—The market is in a rather unsettled state. The offerings of late have been numerous, and there is a tendency toward lower prices owing to the supply being much larger than expected at this season of the year. The fancy grades of white will sell at 15@16 cts. per lb., but any thing below this grade is difficult to place at anything above 10@12. Extracted honey is also easy, with the best grades of white obtainable at 7@8, and ambers at 6@7. Beeswax is steady at 30 cts., upon arrival.

R. A. BURNETT & CO.,
Feb. 7. 199 South Water St., Chicago, Ill.

SCHENECTADY.—Our stock of both comb and extracted is greatly reduced, and we look for an increasing demand at the opening of the Lenten season. Producers still having honey on hand should now send it forward. No change in prices. No. 1 white clover, 15; off grades, 13@14. buckwheat, 12@13. Extracted, light 7@8; dark, 6½@7½. CHAS MCCULLOCH,
Feb. 8. 523 State St., Schenectady, N. Y.

SAN FRANCISCO.—Honey market as follows: Comb, per lb., 10@13. Extracted, water white, 6½@7; light amber, 6@6½; dark amber, 4@5. Beeswax, per lb., 28 cts.

E. H. SCHAEFFLE,
Jan 23. San Francisco, Cal.

ALBANY.—There is very little honey here of either comb or extracted, and prices on good-condition stock remain firm, and think will do so, there being no stock to carry over. We quote white-clover comb, 15; mixed, 14; dark or buckwheat 13@14; extracted, white, 7½@8, buckwheat, 7½. Beeswax 30.

MACDOUGAL & CO.,
Feb. 2. 375 Broadway, Albany, N. Y.

PHILADELPHIA.—Comb honey has been moving fairly well the last ten days. The supply is getting scarce, but the demand is equally decreasing, so the prices are maintained about the same. We quote fancy comb, 16@17c. No. 1, 15@16; amber, 11. Extracted, fancy white, 8; amber, 7. Beeswax in good demand, 29c. We are producers of honey and do not handle on commission.

WM. A. SELSER,
Feb. 9. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—The demand for honey has been very light, with receipts fair. We quote as follows: Extra fancy, per case of 24 sections, $3.40; strictly No. 1, $3.30; No. 1 amber, $3.00@$3.25. Extracted white, per lb., 7; amber, 6@6½. Beeswax, 30.

C. C. CLEMONS & CO.,
Jan. 31. 306 Grand Ave., Kansas City, Mo.

NEW YORK.—The demand has not improved, and the supply is more than the demand. Large sales can not be forced, even at cut prices. Fancy comb, 15; No. 1 comb, 13@14; buckwheat comb, 12@13; mixed, 11@12. Beeswax firm at 30, and good demand.

FRANCIS H. LEGGETT & CO.,
Feb. 7. Franklin and Varick Sts., New York.

BUFFALO.—The stock of honey in our market is quite light. No extracted here, and some call for it. Fancy white comb, 15@16; A No 1, 14@5; No. 1, 13½@14; No. 2, 12½@13; No. 3, 12@12½; No. 1 dark, 11@12; No. 2 dark, 10@11. Extracted, white, 7½@8; amber, 7@7½; dark, 6@6½. Beeswax, 28@30.

W. C. TOWNSEND,
Feb. 3. 167 Scott St., Buffalo, N. Y.

FOR SALE.—We are sold out on alfalfa honey, but have ten 300-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls. fancy basswood at 8c; 60-lb. new cans, two in a case, 9c. E. R. PAHL & CO.,
294, 296 Broadway, Milwaukee, Wis.

FOR SALE.—One barrel partly full (near 400 lbs.) of extracted honey mixed with honey-dew, but light color; good for feeding or factory purposes. Price 5½ cts. per lb. JOHN A. THORNTON, Lima, Ill.

FOR SALE.—Choice alfalfa honey, two 60-lb. cans to the case, at 7½c f. o. b., Cedar Rapids, Ia., or Springfield, Ill. H. L. WEEMS, Cedar Rapids, Iowa.

FOR SALE.—White extracted honey from alfalfa in 60-lb. cans, at $4.50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, $4.20 each. Prices on small cans and pails on application.

M. P. RHOADS, Box 216, Las Animas, Colo.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

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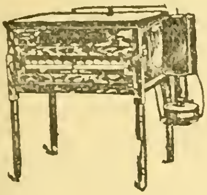

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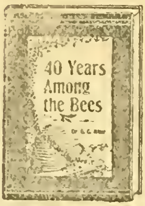

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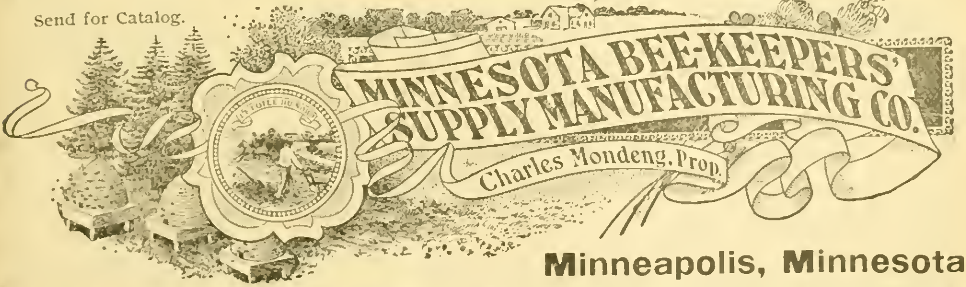

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Stray Straws

By Dr. C. C. Miller.

Well, well! it seems like old times to have A. I. Root writing about bees again. More power to your pencil, Bro. A. I.

M. Ed. Bertrand says bees attack a person worse when stooping than standing; perhaps because when stooping he has more the appearance of some animal. [I have never noticed this characteristic on the part of the bees. They are so quick in their actions at times, that, even if they were a trifle more inclined to attack a person in a stooping position, the fact might not be observed.—Ed.]

That first verse of Eugene Secor's poem, p. 90, is hardly a fair sample. It's merely the introduction. When he gets to talking about what those eleven youngsters did and saw in the old days when some of us were not as stiff in the joints as now, it just takes hold of the heart-strings. [That's what I meant to say, doctor. I hope all will get the book. I did not have room for quotations.—Stenog.]

It is noticeable that, in the discussion as to whether brood-combs become too old for best results, the foundation-makers of this country seem to be a unit in saying that old comb rears just as large workers as new. Certainly self-interest would not range them on that side. [Yes, it is to the interest of the foundation-makers to talk the other way. If it were true that old combs should be renewed every ten years or oftener, the foundation-makers would be sure to make quite a handle of the fact in their advertising.—Ed.]

Success to you, Ernest, in getting up that gasoline-engine! I've a whole lot of faith in it. [The more the thing revolves in my mind, the more sure am I that I am on the right track. That one day of turning the crank of a six-frame Cowan extractor in California, extracting 12 lbs. to the gallon, sage honey, did more to pound into me the necessity of some sort of power to turn such machines, instead of hand-power, than any thing else. Yes, it pays to get out among the bee-men and actually encounter what they have to run across.—Ed.]

The editor wants to make friends with me about bees preferring old or new comb, p. 105. Um-m-m, I s'pose so; but I don't see any clear proof given by Mr. Laws that bees in any case *preferred* new comb. The nearest he comes to it is that the brood is scattered in the old comb, the other cells being filled with pollen. Of course the brood would be scattered if the cells were pre-empted by pollen. I'd like to hear of just one case where the bees passed over old comb in good condition, leaving cells in it entirely empty, to occupy new comb or foundation. [This summer, if I can get the time, I will look this matter up a little more.—Ed.]

That testimony of A. I. Root, p. 105, is to the effect that he sowed white clover in August, 1901. and after growing that year it blossomed the next year. That was hardly blossoming the first year. Last year I sowed white-clover seed in the winter in the window, transplanted the plants in the open ground, and they blossomed finely. Some of the same seed was sown in the open in the spring; and if it blossomed at all it was poorly. But it didn't have the best chance. After all, the usual question is not whether it blossoms the first year, but whether it yields honey. It hardly seems it would blossom at all without yielding honey and producing seed. [Probably A. I. meant it blossomed within 12 months after sowing, not that he sowed it in 1901 and cut it in 1901.—Ed.]

I noticed an error in the last Straw, p. 48, where it says 86 to 162 per cent means

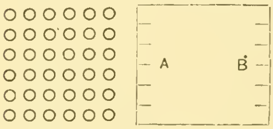
86 to 162 "out of every 10;" but the error shows on the face of it, for any one with a slight knowledge of percentage knows that so many per cent means so many out of every 100 and not "out of every 10," so I didn't think it worth while to say any thing about it. But a correspondent writes in rather severe terms, questioning either my truthfulness or my knowledge of percentage. As I consider myself fairly at home in percentage, and would like to build up a reputation for veracity, I hasten to say to my disturbed friend that I think when that Straw was written there was a zero in it that was either lost out in the mail somewhere between here and Medina, or else it was carelessly dropped on the floor of the printing-shop in that Buckeye town. Yes, that "10" should be "100."

In the experience I have had pressing wax, it has appeared to me that *time* is one of the most important factors—a factor that has not been sufficiently emphasized. If you double your pressure and cut your time in two, I think you'll not get as much wax. If you give half the pressure for twice as long, I think you will get an increase of wax. [Right you are, doctor. We have learned by experience that it is not tons of pressure, but a mild pressure exerted often or continuously, that does the work. The free wax must have *time* to disengage itself from the mass of foreign matter; and a high pressure in a short time will not accomplish as much as a low pressure applied intermittently; but each intermittent pressure should be a little harder than the one preceding; that is to say, the mass of slumgum should be reduced in size a little at a time. One may say it takes time to do all this. That is true; but at the present price of wax it *pays* to take the time, especially if taken in bad weather or at night.—Ed.]

Observations at Swiss experiment stations show that more honey is consumed by the bees in mild than in severe winters. This accords with the fact that in this country bees consume more in the South than in the North. [Exactly. And yet there are some who do not seem to comprehend why this is so. When it is very cold and the bees are *properly housed or protected* they go into a quiet sleep—not a state of hibernation, but a state where activity is practically suspended, where there is no brood-rearing, where the waste of tissue is as nothing comparatively, and they merely exist. In such conditions the consumption of stores to supply the waste will be very light; but in a warmer climate, where the bees can have flights every now and then, when they can move around on the brood-frames, rearing a little brood, there is a large waste of tissue, and of course it has to be made up by eating more stores. When bees are *poorly* protected outdoors they will eat more than if kept reasonably warm. This is why cellared bees consume less than those outdoors.—Ed.]

Wax-presses in which the wax is pressed under continuous heat, for some strange reason, seem to be less in vogue in this country than in Europe. But they're forcing their way to the front here. I have had a strong leaning toward hot water rather than steam, partly because of its advocacy in foreign journals, partly because it seemed to me that wax when kept continually *under* hot water would be kept hotter than when steam was merely allowed to force its way through the wax. But I have been obliged to change my mind when confronted with a machine that would confine the steam to such an extent that, as in the German wax-press, the steam would escape from the upper part at the boiling-point. If the same heat can be maintained with the steam, then it must have the preference, for convenience in getting the wax out is all on the side of the steam and against hot water. [We went all over that ground very carefully here at Medina, and came to the conclusion that there was no advantage in the use of hot water over steam. Pressing wax under hot water is a messy job; and steam under pressure can be, as you know, hotter than 212.—Ed.]

That experiment concerning fertilization in confinement, p. 94. As I understand it, the tent stood close beside a large apiary, represented by the o's in the illustration; the nuclei containing the virgin queens were in the tent, or beside it at *A*, and the drones at *B*. Let me suggest how it might have been: At the time of day when the virgins were inclined to flight, there was a great roaring in the large apiary so close by, and the virgins would try to fly in the direction of that roaring. If the drones were attracted by the same noise, it would only attract them to fly into the tent. Slightly corroboratory of this view, I may mention that, for a good many years, following the lead of Adam Grimm, I left an opening for ventilation at the back of each hive at the top. Although in some cases this seemed a freer opening than the regular entrance, the young bees never used it for their play-spells, nor was it ever used as an entrance. The only reason I could see was that the young bees were attracted by the noise at the regular entrance. Now suppose Mr. Holtermann had set the nuclei with the virgins at *B*; is it not possible that they, following the direction of the noise, would have made their way freely into the tent? [You have very possibly solved the mystery as to why the young queens did not come out inside of the inclosure. But Mr. Holtermann is going to write another article on the subject, and will doubtless cover this point in detail. I want to say right here now that Mr. Holtermann's experiment convinces me that the plan can be made to work.—Ed.]



Pickings from Our Neighbor's Fields By "Stenog."

From east to west, from north to south,
  War's growling notes are heard;
The Slav, the Briton, Gaul, Greek, Hun—
  Yes, all mankind—seem stirred.

* * *

That "bologna-sausage" honey sent us by Mr. Aikin is deserving of all the praise bestowed on it. It looks like a block of marble about the size of a quart cup. The granules are too fine to be noticed, causing the mass to taste like some cream candy.

* * *

Foreign bee journals as well as those published in this country teem with new kinks, in machinery for the use of bee-keepers; also new methods of manipulation in the apiary. In our last issue Dr. Miller, in Straws, referred to a machine for extracting honey from both sides of the comb at once. The tops of three frames are fastened together so as to form a triangle. The space between them is filled by a wheel to which the frames are attached. As the wheel revolves, like a common grindstone, the frames also rotate in the same plane. The apparatus is covered above and below with a cover, probably of tin, and the honey runs out of a faucet at the bottom. In the same journal, *Gazette Apicole*, one of our French exchanges, I see a device to capture the queen during swarming. I think a description will make it plain without a cut. The inventor says:

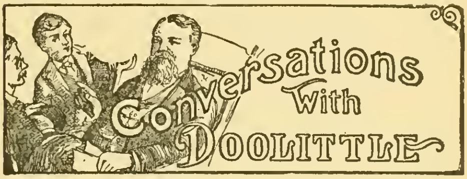
"My apparatus consists of a kind of hopper, 24×24 inches at the top, and about 16×16 at the bottom. This bottom is closed by means of perforated tin. The hopper rests tight over an open hive-body. Suppose I wish to capture the queen or all the queens of a swarm. I shake the swarm into this crib. Immediately the bees will go through the perforated tin, and enter the box below. On top of the tin the queen or queens will be found, when their capture will be easy. If I wish to introduce the queen to the swarm I let her run through a hole in the hive-body."

* * *

Progres Apicole informs us of the death of Dr. Reisser, President of the Algerian Bee-keepers' Association. He died in Philippeville, Algiers, Dec. 9. He was editor of the only bee journal published in the Arabic language. Dr. Reisser was well known in Europe, and his death is a real loss to bee-keepers there.

In the same journal I find the following, apparently starting in Germany:

"Mr. Barthel, near me, had a fine young Syrian queen. She hatched in June, began to lay in July, and soon had several frames filled with eggs. Although the colony was populous and the honey-flow good, Mr. B. never found any larvæ in the cells. He told me about it, and asked my advice. I proposed to him to make some experiments, and he agreed. I took a frame containing some of these false eggs, and introduced it to a colony from which I had taken the frames of brood, and whose queen I had caged. The eggs produced no larvæ, although the experiments were made in different ways. In the fall, the honey-flow diminishing, we fed heavily, but always unsuccessfully. We wintered the colony under the best conditions, but unfortunately the queen died during the winter. The trouble was doubtless owing to some sexual defect in the queen."



Conversations with Doolittle

POLLEN IN SECTIONS, ETC.

"Hello, Doolittle! Shoveling snow, are you?"

"Looks like it, Smith. What a terrible storm we have had for the past twenty-four hours! Did you ever see it snow and blow harder than it did yesterday afternoon?

"I do not know that I ever did—could not see ten rods, the storm was so heavy, and it piled into buildings everywhere. Have you noticed how this south storm drove the snow into the entrances of the hives till it has piled the snow clear up between the combs?"

"No, I had not looked at the seven hives which I have outdoors, but I know that it does sometimes do this where the entrance is not shaded from the sun or shielded from the wind. I always shield mine."

"How do you do this? It is something I never heard of. I supposed it was necessary to leave the entrances open all winter."

"The entrances are not closed more than yours. I simply set a wide board on the bottom-board to the hive, leaving it out away from the hive, where it rests on the bottom-board four or five inches, so that, when the top is leaned up against the hive above the entrance, it will stay there, thus making a storm-door, as it were, in front of the open entrance. Let us go up to the hives, and then you will understand better about this, and we will see whether the snow has blown in or not. There, do you see how nicely that leaning board shields the entrance and front of the hive from sun and snow?"

"Yes, certainly. I wonder some one has not written about this."

"I have written the matter up, but not in several years. There, now that the board is removed, you see there is no snow in the entrance."

"That is so. And mine was chock full and the snow clear up among the combs. Well, this was not what I came over for, but it has more than paid me for coming. But why do you wish the hives shielded from the sun?"

"In bright sunshiny days during the months of February and March, where the sun can strike the hives in front, and shine directly in at the entrance, the bees are often enticed out into this warm sunshine; and finding it so warm and nice in this bright sheltered nook they think it must be thus warm everywhere, so take wing only to be chilled as soon as they come into the cool air away from the entrance, fall down on the snow, and perish, and thus valuable bees are lost which would not think of venturing out when the air was thus cold if the sun was not allowed to shine in and on the entrance, so as to entice them out."

"Why, that is perfectly plain as you explain it, and it accounts for the loss of thousands of my bees every winter, which I have seen lying dead on the snow. But I had consoled myself that I was right in leaving the hive thus exposed to the sun, as I have read somewhere that they should be so left that the hives might be dried out and warmed, which was to the benefit of the bees. What do you think of this part of the matter?"

"That part may be all right; and if you will stop to think while you are looking at these boards, you will observe that these shield-boards do not project on either side of the hive, therefore the sun can shine on the east side of the hive till very nearly noon, and soon after noon it begins to shine on the west side, and continues to do so until it goes down in the west. This warms and dries the inside of the hive all that is necessary, while it does not entice the bees out till it is warm enough for them to fly and get back safely."

"Well, now, that is so. I'll fix mine that way at once before I lose more bees. But how about these boards when it is really warm enough for the bees to fly?"

"There comes the main objection to them. When it is warm enough for the bees to fly it is better to have them removed, which I do; and then at night, or as soon as it turns cold again, I replace them. This makes some work, but I am satisfied that it is paying work. But you spoke as if you came over for some special purpose. I should like to talk with you an hour, but I have to leave home soon to meet an appointment."

"Well, I'll try not to hinder you long. I came over to ask you why bees store pollen in sections. I had one colony the past season that stored large quantities of pollen in the honey-boxes, while the other colonies stored very little, if any. If there is any help for this matter, I wish to prepare that help during this winter, so that it may be ready when wanted next season."

"The storing of pollen in the surplus-apartment is largely brought about by the queen filling the brood-chambers so full of brood that there is not room enough for all of the needed pollen below."

"Then larger hives would be a remedy."

"Yes, for such storing does not very often happen when a large hive is used; but with our small brood-chambers of the present day it is not at all unusual for this state of affairs to exist where no honey-board or queen-excluder is used."

"Then you think a queen-excluder would help this matter?"

"Yes, I know it will, and especially the queen-excluding honey-board made of perforated zinc and wood; and I think it would well pay for using on this account alone, where the brood-chamber used is not larger than from six to eight Langstroth frames. I think you contract your hives by means of dummies down to five or six frames, do you not?"

"Yes, and that is probably the trouble. But is there no other plan of avoiding this matter?"

"Yes, there is what is known as the 'break-joint' honey-board, which is almost entire proof against the storing of pollen in the sections."

"What is a break-joint honey-board?"

"It is a honey-board so made that the openings from the brood-chamber to the surplus-apartment come directly over the center of the top-bar to each frame, instead of being over the passageways between the combs, as our honey-boards of the past were made."

"What is that for?"

"This causes the bees to come up on the top-bars of the frames till they reach the centers of them before they can enter the sections, when, by then going up through the bee-space, they are in the sections. Or, in other words, this gives a crooked passageway instead of the continuous passageway of our fathers."

"What has this to do with the matter?"

"Such a circuitous route causes the bees to think that the room above is not a part of the brood-chamber, so they do not store pollen in it, for pollen is, as a rule, stored close to the brood. For the same reason, large hives give the same results, as in this case there is usually quite an amount of sealed honey between the brood in the hive below and the surplus-arrangement above."

"But it is not calculated that bees will store as much honey in the sections with the large brood-chamber, is it?"

"No. It is claimed that bees will not work as well in section boxes where they can store large quantities of honey below before they commence in the sections, so it is thought that a small brood-chamber is much more preferable during the white-honey harvest, even if we do have to go to the trouble of making and using a special honey-board to keep the queen and pollen out of the sections. But I must be off now."

Editorial
By E. R. Root.

In this issue we are obliged to leave out our usual installment of illustrated matter, for the simple reason that a large amount of good matter has been accumulating for several months back, and is still awaiting a chance to get before the public, most of which, too, is already in type. So this time we put in nothing but pure reading-matter, and that relating largely to questions and answers. Some of them are somewhat belated; but it is the best we can do.

HOW THE RAMBLER'S DEATH IS MOURNED BY OUR READERS.

Kind and endearing expressions showing real sorrow and love for the Rambler are coming in by the hundreds. I knew our friend was dear to all our subscribers; but I never realized that he had so closely interwoven himself into the hearts and affections of all our readers. Those whom he met on his travels seem to feel especially the loss. They think of him as a near and dear friend and brother, taken, as it were, from their midst; for as he appeared in almost every issue of this journal our readers felt as if they were keeping in close touch with him; and now to know that they shall see and hear him no more, the blow seems to strike deep to the heart.

I should be glad to publish some of these letters; but at this rate I could fill up several issues with such letters alone. As it is, I can only refer to them in this general way; and I am sure I am expressing the thanks of his surviving relatives and his many friends when I say we one and all feel deeply grateful for all these kindly expressions of love and affection.

THE CLIMATE OF CUBA, AND HOW A. I. ROOT ENJOYS IT THERE.

In a letter recently received from A. I. Root, in Cuba, he says he never felt better in his life. Verily he seems to have found the "fountain of perpetual youth," not in Florida, but in Cuba. The climate seems to be delightful; his malaria is entirely gone, and he goes about thinly clad, like the natives. When he left Medina he had a pinched look; malaria and chills were hanging over him; he was muffled up in heavy overcoat and overshoes, and had a fur cap drawn down over his head and ears. Now these things are all cast aside.

He is outdoors most of the time, riding a wheel, and is recuperating as perhaps he never did before, even in Michigan, which latter place has seemed hitherto to be a panacea for all his ills.

It is barely possible that some of our readers may have imagined that the climate of Cuba is unhealthful, from the fact that our dear friend the Rambler died of fever; but where he was located in Taco-Taco it was swampy, and infested with mosquitoes of the malarial kind. But the main portions of Cuba, especially in the winter, are decidedly healthful.

THE GENERAL SUBJECT-MATTER OF A BEE JOURNAL; THE VALUE OF QUESTIONS AND ANSWERS.

I have often wondered what parts of our journal were most interesting to the *mass* or the great *majority* of our subscribers. I have supposed the technical articles from the limited class of expert bee-keepers were eagerly read by other expert bee-keepers, but that the department of questions and answers was of but little interest to them. And yet I have had bee-keepers of many years' experience tell me they have often picked up many valuable little kinks in that part of our journal.

In this issue we have given an extra number of questions and answers, and I shall be glad to hear from our subscribers as to whether or not a preponderance of this kind of reading is what they want.

Perhaps a little experience of my own may be somewhat suggestive. I am a beginner in automobile driving. I sent for several text-books on running gasoline-engines, and subscribed for two automobile journals; but I am free to acknowledge that the part of these journals most interesting to me is that relating to questions and answers. The long technical articles are too much for me. A subscriber, for example, goes on to state that his gasoline-engine slowed down very fast, and finally came to a standstill, and he could not make it go. The answer of the editor, who is supposed to have "been there," is "mighty interesting reading," I can tell you. From the department of questions and answers in these journals I have picked up more ideas of value in the management and running of these horseless vehicles than I have from any other department of the papers or from any book; and when I came to compare my own experience as a novice in the automobile line I began to wonder whether my experience might not be almost identical with that of beginners in bee-keeping who are eagerly thirsting for information.

We can make our text-books as elaborate as we please; we may try to cover every phase of experience; but there are many combinations of experience that can not be entirely covered in text-books; and it therefore devolves on some editor, who has learned in the dear school of experience, to pilot his brother-man out of darkness into light.

I should be very glad to get postal-card expressions from some few thousands of our subscribers. By the way, it may not be known, but Gleanings goes regularly to over 15,000 families now; and we as publishers and editors are anxious to know just what those families wish to have in the way of a bee journal.

FORCED SWARMING AS PRACTICED BY J. E. HETHERINGTON AND P. H. ELWOOD.

In this issue there is an article by P. H. Elwood, who has been associated for many years with Capt. J. E. Hetherington. The latter has owned as many as 3000 colonies, and Mr. Elwood something over 1000. They, together with Mr. Coggshall, of West Groton, same State, come near being the most extensive bee-keepers in the world. It appears that Mr. Elwood and Mr. Hetherington have for years practiced forced swarming in one form or another.

ATTENTION, BEE-KEEPERS; THE NATIONAL GOVERNMENT TO OUR AID.

Our subscribers are urged to write a letter at once to the Hon. Redfield Proctor, Chairman of the Committee on Agriculture and Forestry, of the United States Senate, urging an addition to the appropriation for apicultural investigation. Be sure to make the particular point that *this is to be in addition to the present sum proposed for the Department of Entomology.* I am informed that, as the matter now stands, the funds of the Division could be used, but probably not unless we get something added to the amount now available. Apiculture is now named in the bill reported from the House to the Senate, and referred to the committee of which Hon. Redfield Proctor is Chairman. This is very important; and now that our subscribers have the opportunity to get a more substantial recognition in the way of financial aid for experimental work on the part of the government of the United States, they should write at once, or, still better, send a telegram to the address given above.

IMPROVEMENTS AT THE REVIEW OFFICE; THE MUSIC OF HEAVY MACHINERY.

I have just noticed by the *Bee-keepers' Review* that my co-laborer, W. Z. Hutchinson, is also trying the eccentricities of a gasoline-engine, not in an automobile, but to run two printing-presses. Somehow Bro. Hutchinson strikes on the same hobbies that I have had, and one of them has been amateur photography.

But Bro. Hutchinson has put in a gasoline-engine, shafting, and a big cylinder press, to run off the *Review* . Formerly he set the type at home, and hired the printing done up town. Now he has reversed the process—has his type set by machinery up town, and does his printing at home. He writes very graphically of his experience in writing editorials and preparing copy for the *Review* amidst the "fussiness of a gasoline-engine," and the "clank, clank, grind, grind," of two presses going on in the room below. He writes:

> I am like an editor I once read about. Some one asked him if the noise of the presses did not disturb him. "No," he cried, "that is sweetest music in my ears. What worries me is when I don't hear it." It may seem strange to some, but noise of this kind does not disturb me. Some of my best writing has been done on a railroad train. The monotonous noise acts as a curtain, shutting out all other distractions.

For several years I have dictated my "stuff" in a room just above the press-room. The "clank, clank, grind, grind," expresses the situation exactly; and yet these things never disturb me. On the other hand, if the noise stops I wonder what the matter is. Just now there are two cylinder presses, both driven by electric motors, rumbling beneath me. In an adjoining room, just back of me, the book-binding is done, with its combination of noises. In another near-by room is the chuckety-bang of platten job presses. Then there is the rumbling of heavy trucks, and the moving of heavy freight, in the packing-rooms, and every now and then the roar of a ponderous freight train carrying coal from the near-by mines to the lake; and yet, strange as it seems to me, I am never annoyed by any of these things.

HOW TO GET WELL AND KEEP WELL; SCIENTIFIC EXERCISE; AN EXPERIENCE OF THE EDITOR THAT MAY BE USEFUL TO SOME OTHER BROTHER OR SISTER.

In this issue I have referred to the fact that my father's health has greatly improved during his stay in Cuba. Some of our friends and readers have been learning indirectly that *my* health has been failing. The strenuous life of a manufacturer and of trying to get out a bee journal has been rather wearing on a little chap like me; but I am glad to announce to our subscribers that I am now on the mend again.

Something over eight years ago I broke down with what the doctors called nervous prostration, and then I went on the beef diet — see Gleanings for 1895, pages 676, 708, 710, 786. I fell away in weight from 140 to 107 lbs.; but after taking the diet I got up to 155 lbs. The tremendous stimulus I then received has lasted me up till within a few months back. But again my nerves, or something, began to fail; and again I looked to the beef diet, and to Dr. J. M. Lewis, of Cleveland, in the Rose Building, to pull me out of my troubles.

For a few weeks back I had not been able to sleep well. My mind would keep on with the busy whirl of the factory; but I had not been on the diet for three days before that beautiful child sleep came back, and I have been having those dreamless slumbers of fully eight hours for the last five weeks.

For the benefit of some our newer readers, and for the benefit of those who have inquired what has brought about this most pleasing change, I will repeat very briefly the essentials of the treatment.

Round steak of mature beef with *all the fat cut off* from it, preferably ground and broiled, is the chief article of diet. A little bit of dry toast, dried clear through, mind you, so that it is as brittle as a piece of glass, constitutes the other portion of the diet. But now listen. The amount of dry toast, to get satisfactory results, should not be over a quarter of the bulk or weight of the meat. A tonic, prescribed by Dr. Lewis, is taken before each meal, and a preparation of pepsin after. A full pint of water, as hot as it can be swallowed, is to be taken about *an hour and a half before each meal.* This part is very important, for but very little liquid is taken while eating. As Dr. Lewis explains, the stomach can not take care of a sloppy mass, for the reason that the digestive fluids are neutralized by the excess of water. The purpose of the hot drinks *between meals* is to wash out the stomach, leaving it clean for the next supply of nourishment. When a patient commences on the diet he may have to begin on as low as five or six ounces of meat. He must cut down some of his physical activities, for his strength will begin to decrease, and he may lose flesh. But if he can start on about eight ounces, and digest it, he probably will not lose either flesh or strength. When I began on the diet this last time, I started with eight ounces, and am holding my own.

But that is not all. I take, in connection*, light physical exercises, for it will be understood that our physical frames are machines, and some portions of them become sluggish from want of action. One of the exercises is to lie prone on the back and lift both feet (keeping both knees rigid and straight) at a right angle to the trunk of the body, or perpendicular to the floor. They are raised and lowered very slowly a few times. The patient next reverses the operation by keeping the feet on the floor and raising the body. As soon as it assumes an upright position, or a sitting posture, the patient is to reach forward, keeping his legs straight, and touching his toes if he can. He raises and lowers, repeating the operation as long as he can do so without too much fatigue. He next stands upright, swings downward, keeping the knees or legs straight, and touches the floor if he can, or as near as may be, and then rises to a perpendicular. In this way he swings forward and backward. He next bends *sidewise* at the hips, keeping the body straight so far as the front and back are concerned. He thus rocks sidewise, bending as far as he can. He now takes deep breathing-exercises that consist of taking into the lungs a large amount of air, expanding the diaphragm as far as possible. He then expels it, drawing the diaphragm in, exhausting the lungs as much as possible. This heavy breathing should be kept up vigorously, enough to make a sound like a steam-engine puffing and blowing. But be sure you cause your diaphragm, or stomach-walls, to expand and contract. The effect of all these exercises is to stimulate the action of the bowels, which, perchance, may be sluggish.

One should be very careful about *overdoing* in the "physical-culture exercise." When he begins his work he should start quite moderately, and increase a little every day. Five to ten minutes of exercise per day, either before going to bed or just after getting up, ought to be enough for a daily practice. The average person will feel that the involuntary action of the bowels is greatly stimulated; and sometimes the effect of the exercises alone is enough to bring about a state of perfect health.

Let me emphasize the importance of being careful not to overdo. Have your heart examined. Do not tire yourself out in any one of the exercises. Almost as much harm is done by overdoing -- yes, *more* harm — than by taking no exercise. One feels the exhilaration, and is apt to do too much. The average athlete — the one who tries to excel or outdo — is pretty apt to be short-lived. Moderate exercise, taken under the advice of a physician who has previously examined the heart, will add years to the life of the average person.

But I found that exercise alone in my case was not sufficient to bring about that quiet sleep I was seeking. I was beginning to have malarial chills, and seriously entertained the thought that I might have to go to Cuba; but no sooner had I gotten on to the beef diet than these chills began to disappear. The malaria is now largely gone, and the dreamless sleep of childhood, so refreshing, is a part of my every-day existence.

No one in a bad state of health should attempt to go on the beef diet alone, for it is risky to do so unless he can do it under the direction of a competent physician who makes this form of treatment a specialty. Dr. J. M. Lewis, of Cleveland, or Dr. Salisbury, of New York, is competent to prescribe in cases of this kind.

I almost forgot to tell our readers that one of my prescribed courses of health treatment (I prescribed it myself, with the sanction of my physician) is driving an automobile; and now you will begin to understand why I was forced to purchase one, even if they are expensive.

To show you what the beef diet has done for a friend of mine, whose name I withhold, I herewith give you an extract from a recent letter he wrote, in response to one from me advising him to go on almost clear meat. He was suffering from a bowel trouble of long standing, and, as a last resort, he wrote to me because he had understood I knew something about the beef diet for curing diseases that drugs could not handle. He writes: "The treatment you have so kindly indicated for me resulted in a most wonderful improvement, for which great blessing I thank you from the bottom of my heart."

THE bee-keepers of Maine are hereby informed that a strong effort is being made to get a foul-brood bill enacted into law at the next session of their legislature. Write to your Senators and Representatives at once.

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* This is separate and apart from the beef diet, and may have to be omitted until the patient acquires more strength.

GENERAL
CORRESPONDENCE.

THE ALFALFA QUESTION.

The Tendency toward Late Cutting; One Advantage of Late-cut Hay; Some Reasons for Fearing Early Cutting.

BY J. A. GREEN.

When M. A. Gill condemned in such unmeasured terms those who had stated that there was a tendency to cut alfalfa earlier, and admitted that there was an advantage in doing so, I was mildly surprised, and at first felt inclined to remonstrate. I was one of the offenders. I had but lately returned from a trip through a number of the Western States, and in an article in GLEANINGS had given my impressions on the alfa question as obtained from what I had seen and heard from various sources and in several States. It had not not occurred to me that there was any reason to doubt what I had been told, as I heard no conflicting testimony, and it all tallied with what I knew about hay-making myself. I knew nothing at that time of alfalfa from experience, but I knew that a great many, if not the majority, of the farmers of Illinois, allow their red clover to become too ripe to make the best hay, and it seemed very reasonable that the same thing was true of alfalfa. Perhaps I am putting it a little too strongly to say that I *know* this. I ought, no doubt, to say that I *think* I know it, for doubtless there are those who are ready to rise up and say it is not so, just as in the case of alfalfa.

After the article was mailed I had an uneasy feeling that perhaps I had said too much. It is not always best to tell all you know, nor to concede too readily what may be to your disadvantage. I half hoped that, if the editor saw fit to publish it. he would first run his blue pencil through a part of it. It was with regret that I saw the article copied from GLEANINGS into some of the agricultural papers.

After the castigation it received from Mr. Gill, I decided, after the first impulse to hit back had passed, that perhaps I had been properly punished, and that the matter had better be allowed to rest. But I began to collect what evidence I could get hold of in order that I might at least set myself right if I was in error. I found, as I expected, that there was some disagreement among growers; but I was not so well prepared to find that those who had conducted experiments at the agricultural stations were not in complete accord, and that bulletins required careful reading to be sure the summing-up was justified.

The bulletin of the Utah station seems to show quite conclusively an advantage in early cutting. The Colorado station finds early-cut hay richer in protein (GLEANINGS, p. 13), yet the director of the station stated in a letter to me that the conclusion of a bulletin soon to be issued was that the proper time to cut alfalfa is when it is in full bloom.

Alfalfa-raisers here, whatever may be their theory, vary greatly in their practice, and I am inclined to think that Mr. Watson (p. 23) is not far wrong in saying that the average ranchman is not likely to cut his alfalfa too early. At least, this is true where any large acreage is to be cut. In this locality there are very few fields of alfalfa so large that the grower can not get them cut within a very short time after he is ready to do so, and I have more confidence in sweet clover as a future source of honey than in alfalfa.

Among hay-raisers as a whole, the tendency is undoubtedly toward earlier cutting, and the experiment-station bulletins will operate to increase that tendency. The truth may be unpalatable to some, but it is none the less the truth, and we shall not gain any thing by, ostrich-like, covering our heads and declaring we do not see any danger. We need all the light on the subject we can get.

I will mention here an argument in favor of late cutting that has not yet been brought out. The riper the alfafa is when cut, the stronger and stiffer the stem. Hay made at such a time does not pack as compactly in the stack as that cut earlier. When it is sold in the stack by measurement instead of by weight, as is very common, there is a considerable advantage to the seller in this quality of the hay. Doubtless this way of measuring the yield of hay is largely responsible for the delusion that a greater yield of hay is secured by late cutting. The Utah bulletin shows very conclusively that early cutting gives a greater number of pounds to the acre. I suspect that the more general introduction and use of hay-scales would do much to decide many in favor of earlier cutting.

As to the article by Mr. L. B. Bell, p. 18, there are several points in it that will bear a little further discussion. I fear that there is little chance of influencing users of hay against early-cut alfalfa. There is a great variation of opinion, even among the so-called "practical" men who do the feeding. Horses here are seldom fed any thing but alfalfa. Only those used for driving or those that have exceptionally hard work to do ever get any grain. As a sole ration, alfalfa is not fit for a horse intended for fast driving, and neither is any other kind of hay. It is too bulky a food for that purpose, however nutritious it may be. Yet all the liverymen here feed alfalfa hay and no other. Some of them say very emphatically that it is the very best hay for the purpose that there is. They stipulate, however, that it must be from the first crop, which horsemen generally consider superior to the second or third crop. They apparently pay no attention to the time of cutting, though if questioned they will generally express a theoretical preference for hay cut when in full bloom.

As to the laxative effects of alfalfa, early cut or otherwise, opinions differ again. Unless questioned particularly on the subject, few will ever think to say any thing about it; and it is evident that with most of them, at least, any opinions they may have on the subject are not for every-day use. I have never seen any indication that it is too laxative. In fact, in my experience in feeding horses I have found that a return to alfalfa-feeding—early-cut alfalfa —for even two days was sufficient to correct the too laxative effects of other kinds of hay—oat hay in this instance.

Mr. Bell tells us that 18 lbs. of mature hay is sufficient for a horse, while "if the hay is cut before maturity, a horse will eat 30 lbs. or more and still be hungry, because of the lack of nutrition in the hay." Let me quote from the summary of the Utah bulletin: "The early-cut alfalfa contains the highest per cent of protein and fat, the most valuable food constituents, and the lowest per cent of crude fiber, the most indigestible portion. The former decrease constantly, while the latter increases rapidly from early bloom to the full maturity of the plant."

"The more important nutrients, protein and fat, have the highest per cent of digestibility in the early cuttings, and it grows less and less with the age of the plant."

"In the feeding-tests, the highest gains were made from the early cuttings, and the lowest from the late, the results standing proportionately as follows: Early cutting, 100; medium, 85; late, 75."

"The annual beef product per acre was largest from the early cuttings, not only in the general average but in each separate season's test; and that from the late cuttings was the smallest, the proportional products standing as follows: Early cutting, 100; medium, 79½; late, 69½."

This does not look as though early-cut alfalfa were a wishy-washy, innutritious food. The experiments at this station covered a period of five years, and the results are an average for that time. Their "early cutting" was made when the first blossoms appeared; the "medium" when the alfalfa was in full bloom, and the "late" when fully half of the blossoms had fallen.

The experiments at the agricultural stations are, for the most part at least, made in the most careful and thorough manner. They are not mere laboratory experiments, but practical tests made in the field and stable. The bulletins from these stations are read and acted upon by thousands of intelligent farmers, and the leaven is surely though slowly permeating the whole mass. It will be useless for us to decry them, or to attempt to combat them except with facts equally authoritative. Mere assertion, and argument based on personal opinion, will be of little avail. As a former President said, "We are confronted by a condition, not a theory." We might as well recognize the fact, and adjust ourselves to it. I do not like to pose as an alarmist; but it is a stubborn proposition we are up against, and I am afraid there are worse times in store for those who depend on alfalfa for their honey crop.

Grand Junction, Col., Jan. 17.

THE OUTLOOK FOR FUTURE CROPS OF ALFALFA HONEY.

Time of Cutting Dependent on Locality and the Kind of Stock to be Fed on the Hay.

BY D. A. M'LEAN.

This question, which now seems to be agitating the minds of a good many bee-keepers, especially those who live in the alfalfa region, while of the greatest importance to them does not seem to me to be one that is likely to be influenced very much by any thing the bee-men may say or write about it. Still, I suppose it is best to know and face the facts in the case, whether they are pleasing or otherwise; and I fear I shall be obliged to add my testimony to the "otherwise" side of the column. However, I will premise what I have to offer by saying that this is one of those questions where the much-abused subject of "location" plays an important part. When I read the article of my friend Mr. Gill, located as he is only a few miles from me, I at first wondered a little at his writing as he did. Then I said to myself, "Lucky fellow! he lives in a locality where alfalfa is raised for a different purpose from what it is where I live." I live (unfortunately for me as a bee-keeper) in the very center of the great sheep-feeding country of Northern Colorado, and the fat lambs of Larimer County have become as well known and famous on the Chicago and other Eastern markets as have the canteloupes of Rocky Ford or the potatoes of Greeley. Every winter, within a radius of a few miles of this town, are fed from one hundred thousand to half a million lambs, as well as thousands of cattle, but a comparatively small number of horses. I think it safe to say that not ten per cent—probably not five —of the alfalfa raised is fed to horses. This being the case, the question whether early or late cut alfalfa makes the better hay for horses makes very little difference. It is not the horses the ranchman is thinking of when he cuts his alfalfa, but the lambs and cattle he thinks will eat the most of it.

I believe the facts to be about as follows: If grown for horses or milk cows, to get the most from the hay the alfalfa should be left standing until about all the heads are in bloom, and then quickly cut, cured, and stacked. But a number of circumstances will influence the value of the hay even then.

If left a few days too long the stems will be woody; or if the season has been rather wet the stems will be very large, and the hay coarse, in which case stock will eat only the leaves and waste much of the hay. If the alfalfa is grown for fattening sheep or for cattle that are being prepared for the feeding corrals of the corn-belt it should then be cut at the very commencement of bloom. At that stage the hay seems to contain the elements necessary for fattening in connection with the corn ration that is fed; and, what is of equal importance to the feeder, it is all eaten by the cattle, and a much larger proportion of it by the sheep.

I have in my possession, but can not place my hand upon it at this moment, the report on this subject, of the experiment station located in this city in connection with the State Agricultural College. My recollection is that it corresponds very closely with that from Nebraska, given in Gleanings for Jan. 1, and it would seem as though the feeders in this locality place considerable confidence in those experiments—or, more likely, with the majority if their own experience corroborates the report. At all events, the fact remains, which is the important consideration with us as bee-keepers, that a large proportion of the alfalfa-growers in this (Larimer) county do cut their alfalfa as soon as it has fairly begun to bloom. We can not look for our main honey-flow to begin here before the 20th of June, because not before the alfalfa blooms is there much other forage, and that is not in full bloom before that time. The ranchmen living on three sides of me, who grow hundreds of acres of alfalfa, make their arrangements to begin cutting by the 10th; others even earlier; and with the modern methods it requires but a very few days to cut a large average, so that, by the 20th, scarcely an uncut field can be found. There can be no doubt that this condition of things is having a great influence on the honey crop of this vicinity; and I see no prospect of any improvement, as each year the early cutting seems to grow in favor with feeders. Where, then, do we get the alfalfa honey that still comes from this locality? Well, as a matter of fact the ranchman does not cut *all* the alfalfa. In these large fields of from one hundred to several hundred acres, as great care is not exercised as where only a few acres are grown, and considerable is left standing along fences and ditches and in out-of-the-way places where it is not convenient to run the mower; so that the bees, by a little extra exertion, still find considerable forage.

But, as I said at first, this is a question of locality to a considerable extent. I know of a neighborhood only a few miles from here where the fields are left until they are purple with bloom, and the fragrance is most delightful, and the bees have only to step out of the front door to load themselves with all they can carry. Just why it is left so there I do not know.

The ideal location for bee-keepers in the alfalfa region is where the ranchmen believe the most money is to be made in raising alfalfa seed. If that were the prevailing industry here the present average of alfalfa would support ten or probably twenty times the number of colonies of bees now here. As it is, the number already here are liable to fare rather slim unless conditions change; and the amount of alfalfa honey produced in this locality will not glut the markets of the world.

Fort Collins, Col.

[It should be stated that these two articles, one by Mr. Green and the other by Mr. McLean, were sent in *before* the bulletin from the Fort Collins station reached our office, but were overlooked till just now. It will be remembered that the extracts from it as given in our last issue were to the effect that alfalfa cut when in full bloom had more nutritive value in the aggregate than that cut earlier; and it is possible that the effect of this statement, now going out before the ranchmen, will have the effect of cutting the hay *late* rather than early, as has been the practice heretofore. We hope so; and let us do all we can to encourage them in late cutting.

But I am free to confess that, when I went through the western country just preceding Mr. Green (two years ago), there seemed to be a tendency to cut early. The evidence from the stations and private individuals seems to be somewhat conflicting. But the experiments from the Colorado station at Fort Collins seem to be so full and complete, and I may say *decisive*, that it would seem as if the ranchmen, in Colorado at least, would look to their own interests and follow the advice given — to cut late. The bee-men of Colorado would do well to get the alfalfa bulletin referred to in the hands of their farmer neighbors. When the interests of the bee-keeper and of the ranchmen both call for late cutting it would seem as if the plant should be allowed to come into full bloom.—Ed.]

BEES IN IDAHO.

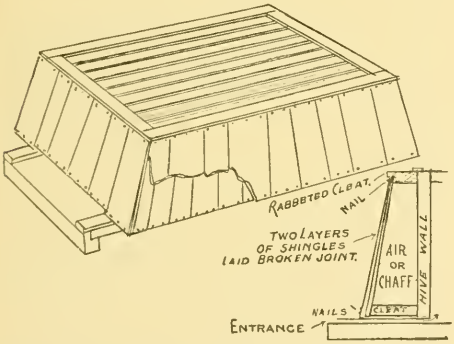
Shingled Hives; a Brick Brood-chamber.

BY E. F. ATWATER.

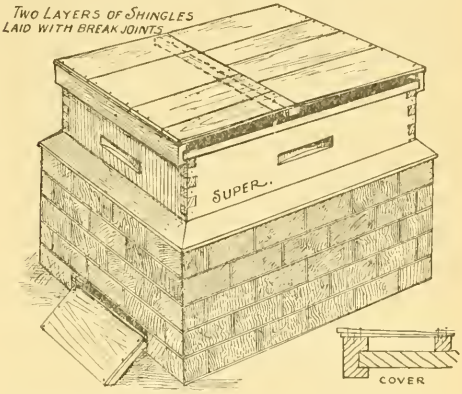
Wishing to learn something of the early history of bee-keeping in Idaho I called, early in December, 1902, on Mr. McClellan, a veteran bee-keeper of Boise. Mr. McClellan has a comfortable and beautiful home among the elms and locusts, and so located that, in times past, the bees could fly quickly to and from the rich lands of the Boise Valley. Until recent years wild flowers abounded, and the bees seldom failed to return a fair surplus to their owner. Now, with the rapid growth of the city, the bee pasturage is fast disappearing, and the little honey that the bees store is badly mixed with honey-dew, which is sometimes so plentiful that it fairly rains from the trees, covering sidewalks and pedestrians with a sticky varnish.

The first bees brought into the Boise Valley arrived early in the fifties, and came, it is believed, from California. These bees were brought in at an immense cost, and several thousand dollars' worth of increase was sold from them; but in a few years foul brood destroyed them to the last colony. Ten years later, in 1862 or '3, Mr. McClellan and Mr. Morse, another veteran bee-keeper, sent to E. Kretchmer, then of Coburg, Iowa, for 16 colonies. These bees came part of the way by stage, and reached Boise without loss, at a cost of $30.00 per colony. Swarms sold at extravagent prices for years, bringing from ten to thirty dollars each. In Mr. McClellan's apiary were several of those old hives, the identical ones that came in 1862. Some of them had apparently never been painted since that time, and yet were almost as good as new, though forty years old. They were square hives, probably the old American frame, and stenciled "The New System of Bee-keeping." For several years honey sold at 50 cents per lb.

In his apiary one sees at once that here is a bee-keeper of an inventive turn of mind. The first of his inventions that I will describe is the McClellan dead-air-space or chaff hives. Around the top of any single-walled hive a rabbeted strip is nailed, and around the bottom a plain strip ⅝ inch thick. The air-space, or space for packing, may be of any thickness, from ¾ inch to 4 inches, according to the climate and preferences of the apiarist, by using strips of the proper width. On these strips, shingles, cut to the proper length, are nailed. When the first course is on, another course is nailed over them, breaking joints, so as to exclude air and moisture. The sides and ends may slant a trifle outward, as shown in the cut, or be vertical, by regulating the width of the cleats to which the shingles are nailed. The upper ends of the shingles are nailed in the rabbet, so that the water can not soak into their upper ends. If chaff or other packing is desired, it should be put in place while the first course of shingles is being nailed. Such a hive as this, well painted, would surely outlast its owner.



Over in one corner of the McClellan apiary are several hives of such novelty that they may be of some interest to the readers of GLEANINGS. The brood-chambers are enclosed in *brick*. Some might think that the bees would not prosper in such hives, but such is not the case. These brick hives are not very suitable for migratory bee-keeping.



Over the super shown on the brick hive is the McClellan combined cover and shade-board. The old-style flat cover has a cleat nailed across the middle, and two layers of shingles are nailed over all, as shown in the cut.

All of the bees now in the Boise Valley (360,000 acres of irrigable land), with but few exceptions, are descended from those thirteen colonies of pure Italians that were sent in in 1862 or 63; yet in spite of the fact that almost no new blood has been introduced, these bees seem in no way inferior to any that I have been able to buy. They are large, hardy, reasonably gentle, excellent workers, and, with proper management, not excessive swarmers.

Boise, Idaho.

CARPET GRASS.

A Good Honey-plant and a Good Feed for Stock.

BY W. K. MORRISON.

Your beautiful illustration and bright description of that valuable honey-plant, carpet-grass, make me think we neglect our honey-bearing flora too much. Carpet-grass is a very appropriate name for this plant, seeing it forms a veritable carpet of verdure on what would otherwise be bare ground, the word "grass" being justified by the fact stock will eat it. To avoid confusion, however, it would probably be better to term it by its scientific name, *Lippia*, which is excellent and easily remembered. The species noticed by you in California is evidently *Lippia nodiflora*. If this is the case, then it is a plant of very wide distribution, for it is at home in nearly all parts of the West Indies. It is common around Cape Haytien, in Haiti; in Jamaica; in

Cuba; the Bahamas, and even in the Bermudas, where it has been introduced, and now is the leading honey-plant, its only rival being a closely related but different plant, *Lantana odorata*. There is another *Lippia reptans* common in Antigua and some parts of the West Indies, which is equally good as a honey-plant, but has not the same wide distribution as nodiflora, so far as I am aware. The difference between the two, however, is very small These *Lippias* are also common in South America, possibly extending as far south of the equator as Minnesota is north, so that they cover probably 90 degrees of latitude. Such a plant is worthy of more than passing notice, for the two are one to a bee-keeper. It is not a weed. Cattle graze it to some extent, and sheep and goats eat it readily—so much so that they might destroy it as a honey-plant. The further north it grows, the closer it hugs the ground, not unlike a creeping vine. Southward it assumes a more erect attitude, and the stems and leaves are coarse. It seems to me Florida bee-keepers should try the proverbial seven times to get carpet-grass established in the vast sandy wastes known as the piney woods of that State. I have an idea it would succeed there. If so, total failures of the Florida honey crop would pass as ancient history, for I can indorse all you say as to its honey-yielding capabilities, and in more than one sense it would prove a decided acquisition. It bears best in the hottest weather, and grows on the thinnest and poorest soils—points that will indicate where it will succeed. In my experience the honey is rather dark, but it is not strong or bitter to the taste; and coming in such profusion I overlooked its color.

If the Floridians succeed in naturalizing Lippia to their sandy wastes they will accomplish a lasting good. It would be a pleasure to traverse the aromatic woods with a carpet beneath one's feet, and stop the sliding-back sensation that the visitor experiences in traveling on foot through that State. If the California seed does not take well, perhaps Bahama seed would hold. In any case it is well worth an earnest effort. I have mentioned Florida, but no doubt there are other places where it would be very useful, as it is no ordinary honey-plant.

Formerly Gleanings had a department devoted to the study of honey-bearing flora. Why it was abandoned we have not been told; but it seems to me such a feature should be the most valuable and helpful in a bee-paper. Of what use are fine hives, industrious bees, and painstaking apiarists, if honey-flowers are not provided for the bees to feast over? I am strongly of the belief that many localities now considered almost worthless for apiarists may be made very productive if proper attention were given to the honey or nectar bearing flora. Some poor localities could be readily improved by a little attention from an apiarist who has paid close attention to this phase of bee-keeping. It a big question full of possibilities. But is not so difficult as we are sometimes led to believe.

[I felt, at the time I described that carpet-grass, in our issue for Sept. 15th last, that it was a wonderful acquisition. The fact that it will continue to yield honey of such quantity and quality from the middle of May until frost in the fall, is a great point in its favor. I saw it only in Central California, in the dryest country imaginable. Indeed, my friends in Sutter County said it would do best when there was but little or no rain. The honey from it in California is of a very fine quality, and I should say it would rank with any alfalfa or clover honey anywhere in the world. But the color of honey, even from the same plant, varies according to the locality. Alfalfa honey in Arizona, for example, is not as light-colored as that produced in Colorado; and I should imagine that the honey from carpet-grass would vary to the same degree, depending on whether it was grown in a temperate or torrid zone.

Your suggestion, that an effort be made to propagate this plant in Florida and other places, deserves more than passing notice; and Gleanings will offer its columns free to any who will advertise this seed, and agree to furnish it to those who desire to purchase. In the mean time, I suggest that Prof. Benton, if he can with the limited funds at his disposal in the Department of Agriculture at Washington, make an effort to procure the seed and see that the same is tested in various localities in the United States, particularly in Florida, where it would be a veritable God-send to the bee-keepers when other flora fails to yield the usual amount of nectar.

The Wessing Brothers, of Nicolaus, Cal., have made arrangements, I believe, to furnish it in small quantities at a stipulated price. Any one interested should write direct to them. In the mean time we should be glad to hear from any others who may have seed for sale. As I have stated, their notice will be inserted in these columns free of charge. It is not a good rule to offer free advertising; but here is something that deserves encouragement, and we should push it all we can. The fact that it will grow under such diverse conditions, in localities so widely separated, is a strong recommendation in its favor.

Speaking of its mat-like or carpet-like feeling under the foot, if one were wearied from a long tramp he could enjoy the luxury of a genuine spring bed by lying down on a plot of it. If, for example, the sandy wastes in Florida could be covered with such a mass of green verdure, with its tiny little flowers so redolent of precious sweetness, what a transformation would be made! Verily the desert would become a garden of Eden; and the happy hum of bees would gladden the hearts of many thousands of bee-keepers. Come, brethren, shall we help to make it come to pass?—Ed.]

FORCED SWARMS.

Keep as Near Nature's Methods as Possible.

BY P. H. ELWOOD.

Before the introduction of the movable-comb hive, Capt. Hetherington forced all of his swarms by driving them out into an empty hive, and I very much doubt if this method of making forced swarms has been improved upon since. The driving process caused them to gorge themselves with honey, which seems to be quite necessary for wax secretion. It also caused them to adhere to a new location quite well when that was desired.

Ever since we first kept bees, thirty years ago, we have practiced forced swarming more or less. With our outyards we have been compelled to take the matter in our own hands; and we find that, the nearer we can keep to nature's methods, and at the same time accomplish our purposes, the better. Instead of driving, we find with movable combs that it is more convenient to shake, taking some pains to have the bees fill themselves with honey, and also to leave always enough bees with the brood to protect it. If making is deferred until they are about ready to swarm they often do swarm out after being made; but unless several are out together they usually return all right, and work with increased vigor for having had their spin in the air. If shaken into a large brood-nest they are less apt to fly out; and if the surplus receptacles are left off for a few days there will be no trouble from pollen being stored in sections. At the time of returning sections the size of the brood-nest may be adjusted to the size of the swarm. If not convenient to leave off the supers a sheet of comb will catch the bee-bread. Foundation or starters may be used at the option of the bee-keeper — more expense with foundation, more work with starters; for, with the best management, there will be quite a little drone comb to cut out and replace with worker. When a comb is used to catch the pollen we usually use foundation with it.

Some bee-keepers, after a week or ten days, increase the strength of the swarm by giving the combs a second shaking. While this has its advantages it also has its disadvantages; for so large an addition of strange bees or of bees expecting a young queen, often produces trouble, causing swarming or supersedure of the queen. It is also liable, unless great care is taken, to leave the young swarm too weak.

You ask if Capt. Hetherington and myself still practice dequeening. We do. By this method there is much less work, less mixing up by having swarms come out together; more honey; better-filled sections, and the colonies usually in better condition for winter. This method may seem to be entirely contrary to nature's methods but it is not. When a prime swarm issues, and the queen is lost from lack of vigor, as often happens, and the swarm returns, the colony is in the same condition that one of our dequeened swarms is We, however, carry the matter a step further, and do not allow them to swarm again, but return the queen or another at about the same time they would naturally have a fertile queen of their own.

By the way, the making of forced swarms with queens that are failing, as mentioned above, is one of the most frequent causes of failure. With such queens they will sometimes swarm out at once, uniting with another swarm, or scattering to other hives, acting about like a queenless swarm. At other times nothing may be seen amiss but excessive drone-comb building and lack of vigorous work followed usually by supersedure of the queen.

While there is no method of making a forced swarm that will cause it to work with quite the vigor of a natural one, still to those who have outyards it becomes necessary to assume control of swarming.

Starkville, N. Y.

CHUNK COMB HONEY.

Questions Answered about It.

BY H. H. HYDE.

Mr. Root:—Owing to the many letters received since the appearance of my bulk-comb article in your issue for Jan. 1, I desire to add a few words of explanation.

The question has been asked me where the friction top cans may be secured. They may be had of the American Can Co. or of any of its agents; but call for their, 3, 6, and 12 lb. cans made for honey. They are a little larger than the regular ¼, ½, and 1 gallon cans that they make for the syrup and canning trade. The two 60-lb. cans with 8-inch screw-tops are the regular two 60's for extracted honey; but instead of the 1½ or 1⅝ caps they have 8-inch screw-caps. These cans and cases are for shipping purposes mainly, but are all right also for retail trade at home.

In lieu of these, however, ordinary lard-pails are all right for home trade. Glass Mason jars are all right for home trade, and are, perhaps, the best for the home trade in that they show the honey to advantage.

The question has been asked me how the foundation is put in the frames. I will say that the frames we use, both regular Hoffman and the shallow Hoffmans of both the Ideal, or 4½ depth, are made with the top-bars smooth on the under side. If your shallow frames come with a saw-kerf on the under side of the top-bars, simply use them upside down.

We fasten the foundation to these frames with a machine of our own invention, with a long plate kept hot with a distributor over a gasoline-lamp. However, the majority do not have these machines; but they can put the foundation on the top-bar with melted wax. Simply keep a can of wax hot, and then use a spoon with which to pour a small quantity along the edge of the foundation, which is first placed squarely in the center of the top-bar.

The question has been asked me, "How about it when the extracted part candies?" Well, you will either have to dispose of the honey before it candies, or teach your customers that there is no finer dish on earth than a fine grade of candied bulk comb honey. Our Texas trade does not object to candied honey in the least, as it has learned that honey is really better in its candied state. I fully realize, however, that this propensity to candy will be one of the drawbacks to its production in the North, and so would advise all to go slowly until they have a ready market for it before cold weather, or until they can teach their customers that it is really better candied. Several of the parties writing me say that they have already experimented with the article in a small way, and are fully convinced that my statements are correct. I was not aware, until the receipt of these letters, that the bulk-comb idea had so thoroughly permeated the minds of Northern bee-keepers.

Before I close, let me ask all to call this product "bulk comb honey" in contradistinction to the miserable stuff sometimes put on the market, taken from box hives and logs, and called *chunk* honey. While the term "bulk comb" may convey an idea more of quantity than quality or kind, yet it is the best term we can use to be understood.

Floresville, Texas.

[Chunk comb honey is somewhat in disrepute, it is true, from the fact that it used to represent the product of the old box hive, and was a mixture of every thing—old combs, dead bees, pollen, propolis, wax-worms, light and dark honey — in fact, a little of every thing that may come from an old-fashioned box hive. Bulk comb honey, as Mr. Hyde would have us call it, represents an entirely different product—the very best table honey, being a mixture of the best extracted and the whitest comb honey. Some of my chance acquaintances have spoken in glowing terms of the "real honey" of "father's table," as if that in sections was manufactured. To argue with them that the latter is just as pure is almost a hopeless task. Sometimes I think we might just as well satisfy their whims by giving them what they will accept, and I do not know of any thing very much nicer than clean sparkling extracted honey, of good quality, having chunks of delicious comb honey mixed in it, of the same grade and quality. When such goods can be displayed to the consumer, and he *knows* it is all honey, he very likely would take it in preference to either comb or extracted separate.

A correspondent near Oakland, Cal., once went out and peddled some of his very white comb honey in tall sections among the wealthy class. They would have none of it. Some of them were from "down east." What did he do? He went home and cut that honey out of the sections, and mixed with it a nice grade of extracted, and sent another man around with the goods. The same people accepted that at once. Why, that was honey, just like that used years ago on "father's table." Of course, they could easily sample it — something they could not do with the pearly-white comb honey in sections; and the mere taste of it was enough to assure them that it was all right. But our readers will remember our friend was disgusted with modern bee culture and modern traps. He was going to give the people what they asked for, and he did.—ED.]

INSISTENCE, PERSISTENCE, SUCCESS.

An Interesting Incident in Peddling Bottled Honey.

BY PENN G. SNYDER.

In canvassing about to find new customers for my honey I ran across a case that I thought might help some other poor downtrodden bee-man in the same pursuit.

I have my honey put up in pound bottles with paraffine over top, and capped with a white paper on which I have my trademark.

To begin with, I first knocked at the door and an old lady of about 70 or thereabouts opened it. I began by saying, "I am looking for customers for honey. I have my own bees; extract my own honey; fill my own bottles as you see them, and sell it for the small price of 15 cts. a pound. I can guarantee it to be pure, for I have seen it from the hive to bottle."

The lady said, "You can't sell me liquid honey. I have been fooled too many times. I like comb honey better, anyhow."

She was about to shut the door when I said, "Now, I have my name stamped on each bottle, and I can't give a better guarantee."

She said, "I do not know you, and have never heard of you or your honey — where do you come from, anyhow?"

I started to explain where I was located, and she knew the place thoroughly, as she had lived near the property for about thirty years.

I said, "Now I should like you to try this, as I am sure you will want more."

She said she would take it; but when I told her I charged 2 cts. extra for the bottle, which I refunded on its return, she said, "Uh!—well, I guess I don't want it."

I said, "Well, I do not think you could buy honey at as low a price elsewhere. I am selling it for 15 cts. As I am compelled to buy the bottles I sell them for the same price they cost me—2 cts. apiece."

Still she didn't want any. By this time I was getting disheartened, but was interested enough to make her take it if it was possible, so I said:

"Well, you don't seem to think the honey is as I represent it to be. Now, I know it is, and I wish to convince you of the fact."

She replied, by saying, "Well, I gave over the household duties several years ago, for my time is nearly run, so it is now out of my jurisdiction, and I guess I won't have it."

If I had stopped then I should have left with the bottle of honey and not the wished-for 17 cents. I was holding on by my teeth and nails, and I continued to do so, the more she persisted in not wanting it. I told her that I felt sure that, if she thought the article was good, and would recommend it to the one who did the buying, she would quickly buy it.

She consented to do this, and went, and came back saying that they would not want it.

I was about to give up, but I still had one more chance. My locker still held one shot which I kept as a last reserve, and I now fired it in this manner:

"Now, as I know my goods I am not afraid of a proof or any test."

I took out my penknife, cut the string, took off my trademark, removed the paraffine, and requested the lady to get me a teaspoon, which she did. I told her to taste it; and if it was not as represented I would not say another word.

She did as I asked, and said, "That *does* taste good." After taking another sip, "Well, I will take it."

Now, this goes to show what perseverance will do, and by what a small margin success is separated from failure. It may also show some beginner not to give up as long as he can hold the attention of his possible buyer.

Morton, Pa.

SWARMING-CELLS VERSUS THOSE REARED IN QUEENLESS COLONIES.

Strong or Weak Colonies for Cell-building.

BY H. G. QUIRIN.

We have read with interest the various articles published in the bee journals, under the above caption. There appears to exist quite a difference in opinion, especially betwixt Alley and Dr. Gallup, the former claiming that as good queens can be reared by a quart or so of bees (and even less, we believe) as by a full colony under the swarming impulse. From our own experience we came to the conclusion that it is entirely immaterial whether the cells are built by bees preparing to swarm or by bees which have been made queenless; the method used in rearing the cells has nothing whatever to do with the quality of the queens, as it is not the method, after all, which produces the cells, but it is the conditions brought about by the method.

There are certain conditions absolutely necessary for the rearing of cells, which will produce good queens, and regardless of what method is used; and should any one of these conditions fail to be present, poor queens will be the result.

In the first place, the larva from which the queen or cell is started must not be too old; in the second place, the embryo must be given a sufficient amount of food, or royal jelly, and the cells built and hatched in the proper temperature. Moisture, also, has an important bearing on the matter. If there is any missing link in queen-rearing, then we would say that that missing link is the knack of being able to be sure of having all the above conditions present.

In reading Dr. Gallup's articles one might be tempted to think that he would have us believe that cells built under the swarming impulse have some imponderable influence entering into their composition, which we are unable to make harmonize with our past experience.

The method used, and which is made a success with one man, may prove an utter failure in the hands of another, for the simple reason that the one (perhaps through long experience) is capable of having and arranging all the details necessary for the rearing of good cells, or, in other words, he has learned by practice how to have all the conditions necessary present.

It is possible for a quart of bees to raise one and perhaps two cells, which will produce good queens; but a strong colony preparing to swarm will raise a larger number of good queens.

Parkertown, O.

[If we could have all the conditions named present, I have no doubt that cells from a queenless colony would be as good as those built under the swarming impulse. The trouble is, it is difficult to get *all* the conditions just the same; and the average bee-keeper will come a long way short of it. I think we may generally say that the queens from swarming-cells are, as a rule, better than those from a colony made queenless; or, in other words, natural cells are better than forced cells. We believe we can rear just as good queens in queenless colonies at Medina; but to bring about the conditions that exist during swarming time, the colony must be fed a little every day, otherwise the young larva will not be lavishly fed — one of the necessary conditions which you name. But there are times when robbers are very bad, and when it is quite difficult to give the small daily feeds without getting bees stirred up. At such times it is not an easy matter to get first-class cells.

While I believe we *can* raise just as good cells under one condition as the other, yet I can not help feeling that Dr. Gallup's contention is, in the main, correct when applied to the average bee-keeper; and therefore I urge the inexperienced, as a rule, who desire to rear only a few queens, to raise them during the swarming time, when there will be an abundance of swarming-cells from choice queens. This requires no knack, and little or no experience, because nature supplies naturally all the *necessary* conditions far better than the average bee-keeper can do it. If one has good cells the rest is easy.

Our own experience in the matter of rearing cells is to the effect that a nucleus, or a quart of bees, if you please, other conditions being equal, would not do as good work in cell-building as a strong colony. Why? The latter is equipped with bees of all ages — young nurse-bees and field-bees — when the quart of bees may be supplied with nothing but nurse-bees or nothing but field-bees, depending on the way the division was made. Then, moreover, it is difficult for a small cluster to keep the center of its brood-nest as warm as the center of the brood-nest in a strong colony can be kept; and this is another condition that I regard as important.—Ed.]

SOME AFTER-THOUGHTS FROM ONE WHO USES THE DANZENBAKER HIVE SUCCESSFULLY.

Closed End vs. Open End Frames.

BY J. W. FAY.

This last year has been one of experimenting with me in learning how to keep bees for profit, so I will inform you of some things I did during the summer.

I use the Danzenbaker hive, because trial with it against the Langstroth and the eight-frame Dovetailed led me to believe it was the best for me to adopt for comb honey.

I used the frames to some extent bottom side up in the brood-chambers, to get them filled full of comb. I found about the first thing the bees would do would be to build brace-comb all over the frames before filling them up, and that caused me too much trouble.

I took ten frames, closed ends, and put top-bars on the bottoms so the bee-space would be the same either side up, and found this worked to perfection.

I did not notice any difference in the queen laying in a frame, whether it was right side up or not. When I reversed the frames I would uncap any honey at the top of the frame, and the bees would carry it up, and the queen would deposit eggs in nearly every cell to the bottom, and also fill up the cells with eggs at top (formerly bottom), nearly as fast as the comb was drawn out. This makes a frame reversible, without any trouble in handling.

I had two weak colonies, both Italians, last spring. I did not want to lose either queen, so I put a queen-excluding honey-board between the two hives and put both on one stand, having alighting-board with small entrance between the hives. The queens seemed at once to take on courage, and very soon built up the largest colony in the apiary. Neither made preparations to swarm, and this colony made me 150½ lbs. of section (4x5) surplus honey; 106 lbs. No. 1. I did not get a pound from 34 other colonies in the apiary; 20 of them were spring count.

The bees in the upper story of the double swarm built their comb to the bottom of the brood-frames.

After trying the open and closed end frames in the Danz. hive I prefer the closed end, and use 9 frames, with follower both sides.

I did not have any natural swarms. This year as soon as the colony built queen-cells, I would set a new hive on the old stand; remove from parent colony a card of brood with the queen on, and place in new hive, and take the other frames and shake the bees off in front of the new hive, and they would go to work like any natural swarm I ever hived. I set the parent hive L. shape from old stand, and in about five days I set it by the side of a new colony, and left for 12 days; then in the middle of a warm day I set it on a new stand. This made my new colony good for honey if there was any.

I experimented with Danz. and other hives by tiering up, and I am satisfied, for my locality, that two hives, Danz. size, doubled up, are worth more than the same if set out single for surplus honey. A single hive can not give a prolific queen room enough. I shall try two hives and have strong colonies, if I have to work two queens to get the bees.

I should like to know why it would not be well to have Danz. frames with top and bottom bar for the same, or bottom-bar the same as the top, making it a perfect reversible frame. I am satisfied it is all right for the brood-chamber, and I see no objection to using them for extracted honey. If necessary the top could be marked, "Use the comb the same side up for honey."

If there were a groove on top of the bodies of the Danz. hive so they would go down ¼ inch, making it air-tight, it would be better when tiering up, provided the bees would not put on too much propolis. My experiments run to two things — strong colonies, and tight hives to retain the bee heat; then with the honey-flow the chance for honey is good.

I believe in the Danz. hive; and after handling goods from four factories, Root's goods are *good goods*, and well fitted — cut out with sharp tools, and of good material. This covers a great deal, and I expect for myself to use their goods.

Woodmere, Mich.

[We had thought at one time of making the bottom-bar the same as the top-bar, and we can do it yet if the users of Danzenbaker hives call for it. As the frame is now, one can have narrow top-bars by simply reversing the frames, if he so desires. But the narrow thin bottom-bar gives one distinct advantage, in that it permits one to get a fair idea of the brood-nest by looking up under the frames, and at the same time not touch one. A wide bottom-bar shuts off the view to a great extent.—Ed.]

THE HOME OF THE HONEY-BEES.

BY HARRY LATHROP.

In the old town of Medina,
In the good old Buckeye State,
Close nestling in the suburbs,
By the city's very gate,
Is another busy city.
There shaded by the trees,
You ask its name? I answer,
'Tis "The Home of the Honey Bees."
And there are others in that city,
Besides the bees as well;
There are many busy workers;
Now listen while I tell.
There is "A. I. Root," the veteran;
Whose persistence long ago
Was the very "Root" and center
Of the business, you should know.
Now this "Root" had won a maiden,
Her eyes were clear and blue,
A helpful wife and partner,
Whose heart was always true.
As a tree by waters planted,
And watered from above,
This man took root in "Ernest,"
With purpose born of love;
And branches spread around him,
Of the trees he loved so well.
With little "Rootlets" coming,
In his heart and home to dwell.
God's blessing rested on him,
A veteran long ago.
Although he signed "a novice,"
The bee-men all well know
That he lead in every effort,
Improvement fast to bring,
And ne'er secured a patent
Upon a single thing.
In keeping of the bees
And making of the hives,
With planting of the trees,
So ordered they their lives.
The business grew apace,
Large buildings then were made,
And in that cosy space
Foundations firm were laid.
The bees had pretty queens,
The hives had sweetest honey,
The girls, while in their teens,
Helped earn some honest money.
There's much of love and beauty still
Within that busy mart,
And th' honey-bees among the trees
Still play an active part.
There are roots of trees and trees with roots,
And trees from roots all free;
But the root that bears the choicest fruit
Is the only root for me.
A great and useful business grew
From that one little plant;
I would describe if I had words,
But then, you know, I can't.
This plant, well "Rooted," has taken "Root,"
And now it bears a tree
Whose product goes to all the earth,
To aid the little bee.

THE BEE-KEEPER'S LIFE.

BY HARRY LATHROP.

The beauty of life for men who farm
Will not compare with that of ours
Who find among the hives of bees a charm
Of sweetness drawn from many flowers.

It ought to make us better far
Than swine-herds might expect to be,
Unless our spirits prove to be at war
With Nature as her charms we see.

These living wonders make us feel
How ignorant and small we are,
And bring us down before the Lord to kneel,
Lest we his perfect work should mar.

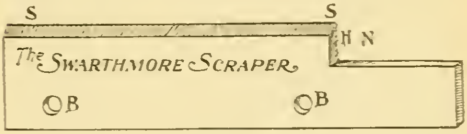
Then let us reverence in each heart
The works of God we see while here,
And labor with a will to do our part
As faith and duty make it clear.

SWARTHMORE'S SCRAPER.

A Tool for Freeing the Propolis, and Brace and Burr Comb from the Top-bars of Brood and Extracting-Frames at One Stroke, Without Danger of Hacking the Wood.

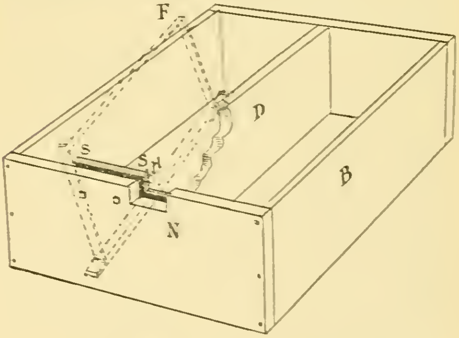
BY SWARTHMORE.

The scraper is simply a piece of hardened steel, ground along its upper edge like a shear, and notched at one end to the depth of one inch to permit scraping and separating the wax from the propolis in an automatic manner. It has two holes near its lower edge for bolting the blade firmly to the bench, uncapping-trough, or tank.



From S to S is the scraping surface for removing propolis from top of bars.
N, notch; H, scraping surface for removing wax from sides of bars.
B, B, holes for bolting blade to bench.

The ground edge of the blade is indicated by shaded lines, and, when attached to the bench ready for use, the shear edge of the scraper from S to S is visible. Only a portion of the bench, box, or tank is cut away or notched to match the notch N in the scraper, so as to permit scraping the wax and burr-comb from the sides of top-bars without turning the frames.



SWARTHMORE'S SCRAPER ATTACHED.

B, box for holding scrapings.
D, division-board for separating wax from propolis.
S, scraper bolted in place.
F, frame in position for scraping.
N, notch for scraping sides of bars.

To scrape a frame, grasp it in both hands at either end of the top-bar, close to the side-bars, and draw it firmly across the shear edge of the scraper at S, which removes the propolis from the top of the bar and drops it into its proper compartment to the left of the division-board.

Now pass the comb into the notch N, and draw it in such a manner that the side of the top-bar comes in contact with the shear edge of the blade at H (see first drawing), which will remove all burr or brace combs and deposit them in a special compartment at the right of the division-board D, where they can be quickly gathered for melting into wax.

Now remove the frame and clean the other end of propolis; then slide it into the notch and scrape the remaining wax from the side of the bar. Thus with three or four quick strokes a frame may be cleaned top and bottom, and, what is more, the bulk of the wax is at once separated from the refuse—a recommendation in itself.

When extracting I take in a set of eight frames at a time; and after throwing out the honey I run them over the scraper, and all are quickly rendered clean and nice for rapid handling. A putty-knife is useful to keep the scraping-blade free of wax. Brood-combs can be scraped fairly well without dislodging all the bees, which is quite a saving in time.

When scraping the brood-frame in the spring, fasten the scraper outside somewhere in a central location, or have it portable by nailing the box to the wheelbarrow.

CAN BUTTERFLIES DESTROY THE BLOSSOM OF ALFALFA?

A Few Corrections.

BY H. W. SMITHKONS.

My Jan. 1st GLEANINGS came yesterday, and I want to write you my appreciation of its neat, artistic, and up-to-date appearance. I am more than pleased with the change. I have read GLEANINGS for 18 years, and have subscribed for it for five years more to come, so you see I take an interest in it. I usually turn first to the editorials, because I like the sensible treatment you give to subjects that are sometimes queerly handled by the correspondents. Keep on with your footnotes.

Your answer on p. 8 to Dr. Miller's Straw on that item about an umbilical cord in bees is worth one year's subscription. I know it is difficult to keep all absurdities and errors out of a magazine that has many contributors; but for the sake of new subscribers who might become prejudiced against a good paper, I should like to call your attention to one or two in the last issue. In Stenog's department, the item about the mole is away off. If he were familiar with moles he would not have copied that fiction from the *Revue*. A mole has a short tail; rudimentary, inconspicuous eyes; short, thick, silky fur, the color of a maltese cat; and large hand-like paws, and it lives wholly in the ground. What Stenog's picking describes is the white-bellied wood-mouse. I know them well, for they frequently occupy the boxes which I have all over the farm for bluebird's nests. They have large shoe-buttonlike eyes, and are very spry. They naturally live in the woods, and gather linden and other seeds; but they also do much damage in corn-shocks and bee-hives.

On p. 11 you speak of the butterflies on alfalfa, and say you were told they "eat the blossom." If you had stopped to remember that butterflies have no mouth-parts to eat, like grasshoppers, which often eat off clover-blossoms, but that they have only a tiny slender tongue for licking or sucking up sweets, I don't think you would have believed that report.

Say—did you ever try honey for tirene in a punctured bicycle-tire? Our boys once tried it in a pinch, and now they use nothing else.

I started with bees (one hive) 18 years ago, at the age of 14, and have made them pay well every year. I have 60 colonies, all in ten-frame chaff hives, and raise only fancy comb and extracted honey for the home market at Lorain. I had nearly a ton this year from 35 colonies, and am just about sold out. I hope that Texas "bulk honey" business will never extend up here, as it would only open the way for adulterators. I raise fancy comb from such colonies as are able to produce it, and extracted from the weaker, and put the latter on the market in ½-lb. tumblers. As I run the apiary as a side issue with a large fruit-farm I need to simplify the operations as much as possible; therefore the ten-frame chaff hives were allowed to swarm once. I shall try the "shook" swarms next season.

North Amherst, O., Jan. 8.

[I am very glad to have any thing that appears in GLEANINGS, that is incorrect from a practical or scientific point of view, set right. Some one else, whom I do not now recall, mentioned the fact that the butterfly could not eat the blossoms of alfalfa, as it had no mouth parts. I am not an entomologist, and do not know; but I assume from what you say that you are well posted, and I therefore accept your correction with thanks.

But butterflies undoubtedly do damage of some kind in alfalfa-blossoms in some regions in Arizona, for some years they swarm in countless thousands over the fields of it. The blossoms seem to blight or wither, and somehow I got the impression that this withering was due to eating the blossoms Perhaps Mr. Will Chambers, who gave the information to me, will enlighten us further.

You have my sincere thanks for your very kind words regarding my work on the journal.

No, I never tried honey in leaky bicycle-tires; but I am sure it would work satisfactorily. When we were doing bicycle-repairing in our machine-shop, we used to pay $2.00 a quart for tirene. I afterward discovered that the stuff was nothing more nor less than finely pulverized plumbago, molasses, and a mixture of corn meal or bran. These last ingredients were doubtless put in to disguise the fact that the stuff was really molasses that cost a cent or two a quart, and for which we paid $2.00. Honey has a quality that syrup does not possess, in that it will dry and form a sort of mucilaginous surface, and I am sure it would make a most excellent tirene.

In regard to moles, Stenog at my elbow says, "Perhaps there are species of them in France that tally exactly with the description of the French writer. I was simply giving a translation, and do not hold myself responsible for what the writer said."—Ed.]

Heads of Grain
from different fields

WAS IT FOUL BROOD?

This summer I found what I thought was foul brood. A hive had three or four dozen sunken cappings with dead larvæ in a putrid condition, some in open cells, and some would be ropy and string out on a twig or spear of grass. This fall, a month or six weeks later, I examined the colony. There was brood on both sides of two frames, about the size of a man's hand; and not a sign of foul brood was found. The cappings were bulged out, and brood was in a healthy condition. Should I burn that deceitful colony? In the spring I also found similar stands, only not so much dead brood. I looked through them two or three times during the summer, and found them all right. Do bees ever make a cleaning-up of this foul matter when in a putrid condition? If they do, perhaps I caught them in this cleaning, and will find them foul-broody later on. An experienced bee-man here told me foul brood was never found better after once getting among the bees. Is this the case? Would foundation be dangerous to use, made from wax melted from foul-broody combs? Could you furnish me a book treating on the cure of foul brood?

Geo. R. Middleton.

Wagerman, Idaho, Nov. 10.

[I think there is no doubt that the colony you describe had foul brood. It is not an uncommon occurrence for an affected colony to clean out the combs, and for a time at least the brood will appear to be healthy. But my experience is that such a colony, if left to its own individual efforts, will every now and then develop the disease. The trouble will continue, and sometimes continue for several years. While foul brood may never get the upper hand of that colony, the presence of the disease in it is a constant menace to that whole apiary. There is something strange in it, but some colonies seem to have the power to resist the disease, notwithstanding it will break out every now and then. But that same virus, if carried to *another* hive, would mean the almost immediate destruction of the colony. I would not burn the hive, but I would burn the combs, put the bees on frames of foundation, and put them in a clean hive, back on the stand. The hive itself I would char out by spraying it on the inside with coal-oil and lighting it. While it may not be necessary to disinfect the hive, I certainly would be on the safe side, if that is the only colony you have in the yard.—Ed.]

GETTING BEES OUT OF INACCESSIBLE PLACES.

Could you tell me the best way to get a swarm of bees out of the siding of a house, and save the swarm? They went in there last August. When is the best time to take them out?

G. R. Hendrick.

Cora, Kan., Jan. 27, 1903.

[Mr. McDonald describes in this issue a very satisfactory method of getting bees out of a tree or inclosure. But if you wish to do the work up quickly, and at the same time get the honey, blow considerable smoke into the entrance or where the bees get into the house; then with a cold-chisel pry off the siding. If you do your work carefully you can get the bees and combs out, and then you can replace the siding without very much damage to the house. A little putty and a coat of paint would make it look as well as ever.—Ed.]

THE CARNIOLAN-ITALIAN CROSS.

In response to a call for information concerning the Carniolan-Italian cross, I will say I have in one of my apiaries, side by side, five colonies in ten-frame hives, representatives of their respective strains, each having characteristics of its strain, and I could not say which I prefer.

First in the row is the three-banded long tongue, every bee alike. Their superior does not exist. Next, imported Carniolan just ended her third season; next the strain golden Italian; then two Carniolan-Italians.

It was exceedingly interesting to study closely the nature of each during the three last seasons. Early this spring the three first mentioned started off with the Carniolan the strongest, the three-banders second, and golden third. For a time neither of them seemed to increase rapidly (owing to unfavorable spring). Then all at once the Carniolans began to increase rapidly (just seemed to bloom), it was not long until I gave the other two each a frame of brood and bees from them, to start them going, because it was getting late, if I expected any honey. You could see the improvement in the two very quickly.

The latter part of May I noticed queen-cells in my Carniolan colony; and, knowing their willingness to swarm, I quickly changed their minds by making two nuclei, when it was time for mating, placed entrance-guards in front of all hives except the three-banders, and I now have two true to name, Carniolan-Italian cross. Their bees resemble the three-banders, though somewhat darker, and bands more narrow, with characteristics of Carniolans, gentle to the extreme, boil over when you open the hive; and breeders—never had better; was no time until these two nuclei were as strong as any in the lot. The only thing that prevents their becoming popular in the hands of novices, and apiarists having many colonies, is their swarming propensity; however, I must say I give them close attention, and seem to catch them in the nick of time, as they never swarmed for me.

In the fall of 1901 I presented a friend of mine with one of my fine Carniolans, because he was taken with their gentleness; but last August he did away with them. He said, "That colony swarmed only seven times in less than three months," so it seems I averted their swarming impulse, and my friend failed to understand.

My Carniolan Italians will always have my closest attention. I find they winter better, and breed up better in the spring.

I helped strengthen my weaker colonies with frames of brood and bees from them.

I often thought if I could only combine the good qualifications of these different strains, I would have a race that might be christened "Eureka" bees.

Cincinnati, O. **Fred W. Muth.**

DISPOSING OF UNFINISHED SECTIONS.

I have about 60 unfinished 1-lb. sections. Some are half full of honey, and some are nearly finished, but have no honey in them. Now, what I wanted to do was to put those that contained honey over my bees in the spring so that the bees would carry this old honey into the brood-chamber. In this way I thought of saving the bees the trouble of remaking the section. Would this be practical? or would last year's honey be dangerous to the bees or young brood?

In case I couldn't use them as mentioned, could I use them in mating queens as practiced by Swarthmore, page 19, Jan. 1?

E. H. Lilian.

Mascoutah, Ill., Jan. 20, 1903.

[You could put the unfinished sections on top of the brood nest in the spring; but they should be covered with cushions or packing material. The bees will be likely to go up into the sections, and make that their brood-nest, because that would be the warmest part of the hive. The sections would be badly soiled, and I would not, therefore, recommend this manner of cleaning out the unfinished sections. The better way would be to stack them up in some hive outdoors; contract the entrance down to just what one bee can go through at a time. The first few warm days you have, the bees will rob out this hive; but be sure to keep the entrance down very small or else it will make a big excitement in the bee-yard. The sections will be cleaned out without any soiling, and without any great disturbance in the yard.

You might use them as recommended on page 19 of our Jan. 1st issue.—Ed.]

HOW TO RENDER OUT WAX FROM PROPOLIS.

Save up all the scrapings of sections, frames, and other fixings, until the season is over; then put the mess in an old tin pail; pour water on until an inch or more deep over the stuff; put it on the stove and heat very nearly to boiling: stir frequently, and the wax will come to the top, and the propolis sink to the bottom. Set it off the stove and let it cool until the wax hardens. Lift it off, then warm up again until the propolis is quite soft, when it can be poured into some dish to form a cake so it will be convenient to handle. Have the molding-dish quite wet, or grease it a little, to keep the stuff from sticking. Save your pail for another season, as it will be very hard to get it clean, as the stuff sticks very closely.

Greene, Ia. **G. R. Shirer.**

BOILED HONEY FOR DYSPEPTICS.

I can not use honey *ordinarily* unless it is cooked — the fresher the honey, the more it requires. Boiled till a dark amber, like syrup, suits me best. I know many people so constituted. Last year I fixed a lot for a man who had denied himself all honey for 20 years.

The best cure for the severe pain of honey sickness is warm cow's milk—fresh from the cow. **C. L.**

I have 20 colonies of bees. The hive I use takes 9 frames 12½×10¾. Is that large enough for a brood-chamber? Is it advisable to raise three or four frames of brood to the surplus-chamber before preparation is made to swarm, placing perforated division-boards between? **I. D. Olver.**

Bobcaygle, Ont., Jan. 26.

[A brood-chamber such as you have mentioned is large enough, or what would be considered standard *capacity*, although not standard in *size*. We would not advise you to commence with an odd-sized frame like this, for the reason that your supplies would cost you a good deal more than standard goods.

It is advisable to raise all the brood you possibly can before the swarming season. You can scarcely raise too much.—Ed.]

I should like to know which is the better pasture for bees — crimson clover or sweet clover. Is alfalfa better than either of these? **E. L. Blake.**

Grand Tower, Ill., Dec. 20.

[As between crimson and sweet clover, I am of the opinion that the former, on an equal area and under equal conditions, will produce much more honey. But the fact is, sweet clover, because it is so widely scattered, and because there is so little of the crimson, produces actually more honey. Alfalfa I should consider best in a dry climate — altogether the best of the three; but in a humid climate, or what is known as the rain-belt, crimson or sweet clover would produce more honey.—Ed.]

FORMALINE GAS FOR KILLING FOUL BROOD.

Mr. Root:—You may recollect that, when in Denver, I was talking to you about killing the foul-brood germ by fumigating it with formaline gas, by Prof. Harrison's method. I mentioned to you that I would experiment with this fumigating cure just as soon as I arrived home. With the assistance of a bee-keeper, I began operations immediately. This gentleman had a hive infected with foul brood. We took the infected frames from the hive and placed the bees in another hive. We then fumigated it with the formaline gas, and, when disinfected, replaced the infected frames in the old hive. We then shook the bees back on to the original frames. The result was, that the colony cleaned up the combs nicely, and a few days later the combs were filled with eggs, and, later, larvæ, the latter being perfectly white, and no signs of foul brood since in the colony. Later in the season I tried this method for friends who had colonies afflicted in the same manner. As the season became too late for brood-rearing I could not ascertain any results. About three weeks ago I sent two frames, which had been badly infected (but which I had previously fumigated, to kill the spores of foul brood) to Prof. Dr. Guyer, of the University of Cincinnati. I requested him to endeavor to restore life to the foul brood, which he promised to try to do. A few days later I sent him another frame infected with foul brood (this frame I did not fumigate). To-day, two weeks after, I visited the professor again, and he reported that he had made about 20 trials, all told. The frame *not fumigated*, he says flourishes with foul brood. To the other frames, which were *fumigated* by this process, he said it was impossible to restore any signs of life. He still has part of the *fumigated* frames, which he will experiment with further, and will then report results. I will acquaint you further with any future results we may secure. C. H. W. WEBER.

Cincinnati, O., Nov. 22.

[This is interesting and valuable, and I hope those who are in a position to do so will give the new drug a trial.—ED.]

WHY HONEY IS CAPPED WHITER FROM FORCED SWARMS; IS IT BEST TO GIVE A NEW SWARM A FRAME OF BROOD?

Dr. Miller says in Stray Straws, Nov. 1, "Honey is capped whiter, is a claim made for forced swarms, p. 864; and it is made in such a way as to be understood as meaning whiter than with natural swarms. It is capped whiter than in a hive with black combs, but no whiter than in a hive with a natural swarm."

I said, "Honey is capped whiter. As you well know, you get whiter-capped sections over newly built combs." I meant you get whiter-capped honey by forcing the swarms at the beginning of a flow than by running the old colonies for comb honey. Of course, the honey is no whiter than from natural swarms, provided the natural swarm is hived on foundation or starters. Probably Dr. M. isn't aware of the fact that a great many *bee-keepers* hive swarms on old black combs, and expect a gilt-edged article.

I find that a great many of my swarms hived on starters and run for comb honey were rather light, as we had no fall flow, and I had to feed some; but I am consoled, as I had nearly all they made in nice white sections which I wholesaled at 15 cts. per section.

In another Straw Dr. M. says, "Shook swarms are being pretty thoroughly shaken up just now; and while the shaking is going on it would be well if the question could be settled as to whether it is best or not to have a frame of brood given to the swarms." I settled that question to my satisfaction several years ago. The worst absconding I ever had was when I would always give a frame of eggs and brood. I quit doing so, and would give plenty of room, shade the hive, also give plenty of ventilation, and I hardly ever have a swarm leave the hive.

It isn't natural for bees to find brood in their new home—that is what they have left. They find conditions partly as they left them, so they proceed to construct cells and prepare to swarm, provided they don't leave at once. If a comb be given, and the rest of the frames contain starters, if they stay they will build more drone comb than if all frames contained starters.

J. T. HAIRSTON.

Sulina, I. T., Nov. 15.

BROODLESS COLONIES.

I have two colonies of bees that have neither brood nor eggs. They are new colonies that I got this season, and both have queens but no brood, although they had plenty in September. They have lots of honey, three or four frames being full.

As I am a beginner I should like to know if these colonies will be safe for winter in this condition; and if not, please state if they need new queens, and whether tested queens would be necessary.

Navarre, O., Nov. 18. WM. H. SCOTT.

[You will not find brood in a normal colony in your locality in November. The queens are probably all right and should be left alone.—ED.]

DOES IT PAY TO USE FULL SHEETS OF FOUNDATION IN THE BROOD-NEST?

I will state my experience. I had one swarm of bees come out about the middle of July, three years ago, and I filled the eight frames with half-sheets of foundation, and the next day a swarm came out nearly the same size, and I filled the eight frames with full sheets of foundation, and in one week I put a super on each of those hives, and in the fall I found the one that I filled with half sheets of foundation had just filled the hive full, and nothing in the super; and the hive that I filled full of foundation, I found the hive full, and the super full of honey and 24 sections nicely capped over; so I consider that the extra outlay of 25 cts. for the extra half of the 8 sheets of foundation brought me in return $3.84 worth of honey at 16 cts. per lb.; and since that time I have always filled the frames in the brood-chambers with full sheets of foundation, no matter when or what time of the year they came out, and I have always considered that it paid me. C. K. CARTER.

Eagle Grove, Ga., Dec. 7.

[While one swallow does not make a summer, there have been quite a number of reports to the same effect as the one given. One of the best bee-keepers in Ohio, Mr. Chalon Fowls, of Oberlin, even goes so far as to say that he can afford to make his own hives out of drygoods boxes, but he can not afford to go without full sheets of foundation. Circumstances and methods of management alter cases; and it is pretty hard to lay down a rule that will apply in all cases; but with ordinary management full sheets give better results than half or quarter sheets.—ED.]

BAD-SMELLING HONEY IN THE HIVE.

I have a hive of bees in my cellar, which has started to cut the comb from the frames, and it stinks badly from the honey they got. The honey is white and nice, and it is a new swarm and hive. There have been two bee-keepers to look at it, but could not tell the cause, so I thought I would write and see what you think about it. JOSEPH FINSTAD.

Esdaile, Wis., Dec. 15.

[I am unable to suggest what the trouble may be. To be on the safe side, it might be well for you to send a sample of the comb to your foul-brood inspector, N. E. France, of Platteville, Wis. Even if the comb is not diseased, Mr. France, being a practical bee-keeper, would be able, probably, to suggest the cause of the odor. In the mean time I might say that the bees might have been gathering, from some source, honey which, before it is thoroughly ripened, is foul-smelling.—ED.]

A QUESTION OF NOMENCLATURE.

In Europe we are called "bee-masters;" in the East, "bee-keepers;" in the West, "bee-herders," while here in the mines we are known as "bee experts." Who can coin a word that will mean the man whose bees keep him, and place him in a separate class from those who simply "keep" bees? Shake, shook, shooked, brushed, artificial, forced, or suppressed swarms is not in it, in comparison. We are trying to frame an act to stop effectually the sale of adulterated honey in California; and unless the act is weakened by an amendment of some commission-house association we will make the name "Pure California Honey" the standard. E. H. SCHAEFFLE.

Murphys, Cal., Dec. 18.

[You are right. We have no specific term by which we may designate the specialist bee-keeper — the one who makes his living by his bees. Mr. Hutchinson has come as near to it as anybody by the use of the word "specialist bee-keeper." I do not see but we shall have to use a lot of circumlocutions; for it is better to be too "wordy" than to be too brief and lack clearness.—ED.]

MUTILATED BEES IN THE CELLAR.

I have thirty colonies of bees in my cellar, apparently doing very well. However, there are many bees all cut to pieces — heads, wings, legs, and bodies lying on the alighting-board. I can not see any signs of mice in the cellar. What is the cause of it? If it is mice, will they injure the colonies? Several hives were affected the same way last winter. Do you think it is vermin that are killing the bees or eating the dead ones? The hives are raised one inch from the bottom-board. SETH DOAN.

Molesworth, Ont., Feb. 4.

[From your description it seems very plain to us that either mice or rats are working among your bees. You would do well to put out poison or set traps to get them out, otherwise they may be the means of ruining or destroying your colonies.—ED.]

A METHOD FOR KILLING YELLOW-JACKETS.

Close the hive at night, and leave it closed till 8 in the morning. In the evening set a can-lid filled about half full of powdered brimstone on the alighting-board in front of the hive. One yellow-jacket will take home enough to kill all of his colony. J. CASSELMAN.

Peck, Idaho, Oct. 4, 1902.

Will it do to Italianize bees at this season of the year? B. GRANTHAM.

Morriston, Miss., Nov. 5.

[I see no reason why, in your locality, you could not Italianize very nicely at that season of the year. Indeed, I should assume that it would be the very best time. But Italianizing here in the North should generally be practiced in late summer or in the fall, or whenever the main honey-flow is past and when there is little honey coming in from natural sources. — ED.]

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1. Is there any way to make a queen lay in the winter, and is it profitable?

2. Would it be advantageous to have a hive so constructed that the 1-lb. honey-boxes could be set down in the hive proper? EDWARD DUBOIS.

Providence, R. I., Nov. 11.

[No to both questions.—ED.]

SNOW AT ENTRANCES ; BEE-CELLARS.

I am a reader of GLEANINGS, and would like to ask you a few questions. 1. Does the snow that blows and stops the entrances of the hives do any harm?

2. Do bees ever get any pollen from basswood?

I want to put a bee-cellar under the kitchen of my house. I am going to dig it 7 feet deep, and put up another wall. This will make two walls. Will the noise over them disturb them, or would you ceil overhead and pack with sawdust? How large should it be for 75 or 80 colonies? How large a ventilator would you have come out through the wall at the door, if any? It registered 10 above zero outdoors, and 29 under the house, with a hole two feet square in the wall. R. H. SWARTZ.

Naples, N. Y.

[1. No, not generally. Snow does no harm around the entrances unless it melts and then freezes, making a hard crust over the entrances, or, worse still, freezing them up entirely. In our locality we never pay any attention to snow. On the contrary we like to have it banked around the hives.

2. I am not sure, but I think they do.

Make your cellar as large as possible. There will be no danger of your getting it too large for 75 or 80 colonies. The cubic capacity of the cellar should be large in proportion to the number of colonies it will actually hold so far as room is concerned. I would not have any ventilator in the door. Open and close the door at night when it is warm outside. Nor would I have any windows in the cellar if you desire to make it suitable for bees. Windows cause too much of a variation in temperature.—ED.]

HIVE-BODIES; WHAT DEPTH IS PREFERABLE, JUMBO, LANGSTROTH, OR DANZENBAKER?

I wish you would tell us the result of your trial of Jumbo hives. The last I saw in regard to them you said they were "boomers;" but I believe you did not tell us how they compare with the eight-frame hives in regard to yield of honey. Unless I can run on to some second-hand hives I shall have to get some new ones for another summer, and I am at a standstill to know what size to get. I think I should like the Danzenbaker for the first season; but when the bees come to breed up the following spring I am afraid the hives would be too small unless doubled up. Could you tell us what is the practice of Mr. Vernon Burt and others who are using this particular hive? Where one does not wish to double up hive-bodies in the spring, would not the regular ten-frame Dovetail be preferable? E. B. WESTON.

Auburn, N. Y.

[The answer to your question depends much on locality. If you lived in Cuba or in Texas, I might advise you to use Jumbo hives. While personally I like such hives, the frames are deeper than regular Langstroth, and can not be used with standard hives. All things considered for your locality, I would advise the ten-frame Langstroth hive, providing *extracted honey* were the object. If you desire to produce *comb honey*, I would recommend first the Danzenbaker, then next the eight-frame Dovetailed Langstroth hive. If the Danzenbaker brood-nest is too small part of the season, it can be easily doubled up in the breeding season, and then, just before the honey-flow, contracted to one brood-chamber. If you do not like to double up, the ten-frame would be better, perhaps; but it is not nearly so good a hive for comb honey as the Danzenbaker. Just what Mr. Vernon Burt's practice is, I do not know. He doubles up with some colonies, possibly; but the Danzenbaker brood-nest is no smaller in cubic capacity than the eight-frame Dovetailed hive, and it is not ordinarily the practice to double up the Dovetailed. If you desire to produce comb honey, and your market calls for deep sections, I would recommend to you the Danzenbaker system throughout.—ED.]

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1. How soon, after making a forced swarm, can I introduce a fertile queen to the parent stock?

2. Are your red-clover queens Italian?

3. Does cotton-plant secrete much honey? and what grade would you class it?

Oenaville, Tex. J. W. GRIFFIN.

[1. You can do so immediately, but you should make sure that all cells and virgin queens, if any, are disposed of. In ordinary practice there will probably be no cells, and you could introduce a new queen in the parent colony the same or the next day; that is, the queen could be caged on the same day that the colony received the shaking.

2. Our red-clover queens are reared from Italian stock. The old original red-clover mother came from Italy.

3. Yes, some honey, but just how much I do not know. While it is regarded as a white honey, the flavor is a little off for table use. That we have handled had to go to the manufacturers. Cotton honey has a tendency to foam—just why, no one knows; and that makes it rather objectionable for bottling or for any table use.—ED.]

Why not advise adjusting a bicycle-pump for testing honey-barrels before waxing, in place of the lungs? Few men are such good blowers, except when it comes to blowing their own horn. C. F. HAEGER.

Hill City, Tenn., Dec. 17.

[A bicycle-pump would do very nicely; but the rubber tubing should be mounted in a cork just large enough to fit the bunghole of the barrel ; then when the barrel is pumped full of air—enough so that you can hear a hissing around any possible leak — let the cork and pump stand in the bung, then proceed to drive the hoops down until the hissing ceases. Pump in more air, and listen for more hissing, and again drive down the hoops as before.

A foot pump would be a little more serviceable than the ordinary hand pump, but either could be used.

It may be well to state that barrels should never be tested for leakage with water — that is, those designed to receive honey for shipment. Use nothing but dry air. Even if there is a leak, the water will cause the wood to swell, and close it; then if the barrel be filled with honey the honey will absorb the water in the staves, and then the old original leak will appear when the staves are dried out again. In other words, a barrel that would be suitable for shipping water or other liquids would not be suitable for shipping honey.—ED.]

THE DANZENBAKER HIVE FOR WINTER.

1. I used this summer for the first time the Danz. hive. They look so shallow I feared there might be trouble in wintering in them. I have cases to put around them, and allow for two inches of planer shavings all around the hives, and four inches on top of the frames. Please tell me if they need any thing more.

2. I have a few queens that I raised in three-frame nuclei. I used an eight-frame Langstroth hive, put a half-inch partition in it, and have a nucleus on each side. I should like to keep the queens over winter. Can I do so? and if so, how?

A. J. KILGORE.

Bowling Green, O., Oct. 6.

[1. No. You have given all the protection that they naturally require.

2. Yes, you can winter two nuclei in one hive outdoors. While it can be done, the chances of success will be very much better by putting all such hives containing two little clusters in a dark dry cellar having a uniform temperature throughout the winter. Two bunches of bees are never as good for wintering as the same number in one cluster.—ED.]

TROPICAL NOTES FROM THE WEST INDIES; ITALIAN BEES LIKED BEST IN TRINIDAD.

For several months past we have had all we could do to keep our bees alive on account of the wet season and the scarcity of honey-flowers. About the middle of October some improvement set in, and honey began to make its appearance rapidly. It was, however, very dark in color, and slightly strong and bitter. One of our strongest hives was given a frame of sections, and filled about two-thirds of the space, when the inevitable swarm went off, and collection ceased for the time being. Even this honey was poor and dark in color. In new combs at date, fine clear and well-flavored honey is making its appearance. In a few months' time, when the logwood comes in flower, we shall have the finest honey of the season, equaling the produce of any country in the world.

We have had three swarms from our 14 hives of black bees, but none from our 6 Italians. The latter are collecting honey much faster than the black bees, and of better quality. I find the Italians do not produce drones at the same rate as the black bees, which fact probably accounts for the difficulty of getting them to replace the stronger bee. We are not experts in Trinidad, and should like to know how to increase the output of drones. At the present time any drone-cells are being filled with honey, so that it would appear useless to introduce drone foundation for the purpose of raising the required number of gentlemen.

Imported Italian queens take readily to a few combs of the black bees, and rapidly make strong colonies. We are now able to procure these at a cheap rate from a neighboring colony in the West Indies. What a funny word that "neighboring" is! In this instance our "neighbor" is nearly 2000 miles away. The common and popular idea of the West Indies is that the islands are in a bunch. What a mistake that is can be recognized only by making a tour through them. Not a bad idea to get away from the northern winter, and is now being followed by those who can afford the time and money. The cost of a trip is very reasonable and comfortable. Steamers from New York sail about every two weeks.

The industry of bee-keeping is progressing slowly in most of the islands; but in Trinidad the popularity and paying character of cacao cultivation somewhat calls away the attention of the people from the smaller industries. J. H. H.

Trinidad, Nov. 5.

[You can increase the number of drones by putting drone comb in some of your best breeding colonies.—ED.]

BEES DYING IN WINTER QUARTERS.

What is the best way to feed bees in the winter? I have two hives which I think need looking after. SUBSCRIBER.

[Give the bees hard rock candy, laying sticks of it on the clusters of bees. If you do not know how to make it, get your baker, or some one who understands candy-making, to make you a clear crystal candy, sticks of it to be brittle as glass, out of pure granulated sugar. Don't use any flavoring. Some use Good candy. This is made by mixing powdered sugar and honey into a stiff dough. Almost any one can make that, but the dry granules are apt to rattle down between the brood-combs.—ED.]

A COMBINED BEE-BRUSH AND SCRAPING-KNIFE.

I have for the past year been using a Coggshall broom and knife combined that proved so effective that perhaps some of the readers of GLEANINGS would find it to their advantage to make one also, as it is a very simple affair. The blade is a long one, tapering down to a point. I tied it to the broom-handle with only a cord, but it came off occasionally, so it will have to be fastened on some better way. Perhaps some kind of fastener on the broom could be devised in which the blades could fit. The blade should, of course, be strong, have one sharp edge for cutting and scraping, and should project out six or eight inches from the broom-handle. Try this and you will find you can pry a lid off a hive, pry a comb out, and brush the bees off in a hurry.

San Antonio, Tex. A. H. KNOLLE.

[It is no doubt advisable, where possible, to have two tools combined in one. It is a nuisance to have to carry along a box or basket with a variety of implements; and if one can make one, in addition to the smoker, do all the work, he is that much ahead.—ED.]

A NOVEL WAY OF GETTING BEES OUT OF A BEE-TREE WITHOUT CUTTING IT.

Mr. Root:—Referring to the inquiry on p. 945, in your November 15th issue, of C. MacDonough, Jr., relative to a method of getting bees from a tree, I desire to give you a plan by which I secured a fine large colony from a cottonwood-tree last summer. The idea may not be new to more experienced apiarists; but to me it was entirely original and successful.

In this particular instance, however, the bee-exit was quite close to the ground. I commenced by inserting into the cavity a three-foot section of one-inch hose pipe. I then covered it and the exit about a foot deep with mud and sand, and packed it down. Finally the bees found their way out of the hose pipe, and, after more or less confusion, into the cavity again. I allowed the pipe to remain as it was for three or four days, to accustom the bees to running through it, at the end of which time I took an empty hive, bored an inch auger-hole in the back of it, and inserted therein the end of the pipe. After two or three days more of confusion on the part of the bees, and when they had again learned the new entrance (that is, through the hive), I removed the hive long enough to attach a bee-trap to the hole formerly bored in the hive, and put it back in position, with the hose this time entering the hole in the *bee-trap*. I then hung a comb of brood, together with full sheets of foundation, in the hive, and inserted therein a caged queen. In a short time I again visited it and found the queen released, the bees very busy in comb-building, and the greater portion, as I imagined, of the bees that had been in the tree taking up housekeeping in the hive.

I was afraid to remove the hive and open up the old entrance for fear the bees would desert their new home, so it has remained on this stand ever since, and will remain until later, when I will take it away. In the mean time they have built up a strong colony, and a hive full of winter stores, but have made no surplus.

I assume, of course, that a few bees remained in the tree, and by this time have either died of starvation or old age; but I succeeded in acquiring a good strong colony from what, at first, seemed to be a hopeless job, as in this instance also I was not allowed to molest the tree in any way.

I presume that, in Mr. MacDonough's case, the same plan could be adopted by having several short joints of hose pipe with screw ends, stopping the bee-exit securely around the pipe with cement or something else, and by degrees screwing the short sections on to the pipe until he got the bees entering it near the ground, when the rest would be easy. J. A. MACDONALD.

Denver, Col., Nov. 27.

[Your plan is all right—only you secured no honey from the tree, but that would not be a large item probably.—ED.]

GETTING BEES OUT OF BEE-TREES WITHOUT CUTTING.

Mr. MacDonough might secure honey from that tree as I do from bees in the wall of my house. Take your usual hive and fill with frames having full sheets of foundation. Put a bee-escape on the hole in the tree so they will have to come out in the hole. You will saw out just under lid in the back corner of the hive. Then to get out they will have to crawl down over those sheets of wax, and enough will spot the entrance to guide all. After a day or two they will go to work, and later a super can be used. About August draw your hive away from the tree a few inches, and put block back in the hole, leaving it independent of the tree. Then if you will supply them with young eggs and brood the chances are they will requeen, so you can move them, leaving the tree to operate on another year. F. R. FOUCH.

Parma, Idaho.

A REMEDY FOR FERTILE WORKERS.

I find that when, either by carelessness or oversight, a colony becomes queenless long enough to permit a fertile or laying worker to usurp the place of a queen, the colony refuses to accept either a cell or a queen, laying or virgin. But my experience here has invariably been that, as soon as the fertile worker commences to lay, the bees do their best to rear a queen from the eggs deposited by her. My remedy is to change the larva, and I am always rewarded by the young queen reared by themselves being accepted. I do not know what becomes of the usurper, but probably she receives short notice to quit. Perhaps my locality may have something to do with it. If, however, this should prove to be useful to some other bee-keeper I shall feel amply rewarded. C. M. AARONS.

Ieremie, Hayti, West Indies.

BEES BITING OFF THE CELLS OF COMBS.

1. During the last year I have found two hives in our apiary, in which the bees began to bite off the cells of combs about four years old. I have thought that the bees did

so only because the combs were old, and probably therefore were unfit for brood. Please tell me how old combs of the brood-nest should be allowed to become before being removable? When are they too old?

2. What shall I do to get the best result in rearing, now and then, some good queens, for my own use? What season is the best to do this, and must or should bees be fed with something while they are engaged in rearing queens? I find that some hives are far superior to others in gathering honey, and I suppose that this depends most on the queen. Now, if I take a comb with fresh brood with the bees thereon and place them in a small box adapted to the purpose, do you think the bees will or can rear a good queen, provided those eggs are from a good queen? Alphonse Veith.

St. Meinrad, Ind.

[1. I do not know why bees should bite off the cells of the comb unless the frames are spaced too closely. The age of a comb would cut no figure in the matter. I don't know when a comb is too old for use. The late R. Wilkin, and I believe Doolittle, said they had some 30 years old, and they were still doing good service in brood-rearing. I do not think there is any thing in the statement that brood-cells grow smaller; for bees reared out of either old or new comb, with the same queen, are the same size.

2. If you desire only a few queens I would advise you to take swarming-cells during the swarming season — those that are at least 9 days old — and insert them in nuclei, or, perhaps, better still, insert them in queen-cell protectors and then in a colony from which the queen has just been killed. If the cell is given to the colony at the height of the honey season, swarming will be checked. at least for the time being.

No, I would not advise taking a comb with young brood. with bees thereon, and putting them in a small box for the purpose of rearing queens. The bees would go to work, of course, and rear cells; but a small nucleus will not do as good work, as a rule, as a strong colony.—Ed.]

IS THE FORCED-SWARM METHOD OF NO VALUE TO PRODUCERS OF EXTRACTED HONEY?

I have never worked bees for comb honey. I am interested only in extracting. Mr. Stachelhausen says, p. 893, that, when he produces extracted honey, he does not depend on forced swarms. He has other ways, some of them preferable. Now, if all this forced-swarm writing in Gleanings is not for my class of bee-keepers, will you please tell me how to inform myself about these other methods he speaks of? Frederick DuBois.

Sanibel, Florida, Dec. 15.

[Forced swarming is, perhaps, an unnecessary procedure in the production of extracted honey. The method Mr. Stachelhausen refers to related, probably, to having large hives or two small ones, one on top of the other. A large brood-nest, whether in one or two stories, extracted every week or ten days, will not be inclined to cast a swarm. Perhaps a better plan, instead of taking off the honey too early, is to raise the super that is filled with honey, and put under it a super of empty combs. In the mean time, the bees in the super above will have an opportunity to ripen the honey thoroughly, after which it may be extracted. There are other methods, but they are more thoroughly explained in the text-books than I can do it here.—Ed.]

OLD COMB VS. NEW; DO QUEENS PREFER EITHER, OR IS IT ONLY A WHIM OR NOTION OF DIFFERENT QUEENS?

It is strange the differences we bee-keepers find, or seem to find, in the manner of work of our bees. For instance, Dr. Miller has for years been stating that, in his experience, queens prefer old comb, and yet there are contradictions of this, and you yourself are inclined to side against him. Now, if you watch this matter next season, as you propose, you will find, if your queens act as do Dr. Miller's and my own, that they most decidedly prefer old comb to new. I have had queens, both in nuclei and full colonies, skip a bright new comb until they had filled the old black combs on either side with eggs, and this not once but many times, and every season. Is it lack of observation with others, or a peculiarity of Dr. Miller's and my own queens? I am satisfied that locality is accountable for many differences, but scarcely for one like this. C. S. Hams.

Holly Hill, Fla., Dec. 16.

[The apparent conflict of opinion in this matter, I think, is explained very satisfactorily on page 105, Feb. 1.—Ed.]

HOW TO KEEP OLD TRANSFERRED COMBS IN A NEW FRAME WITHOUT THE USE OF WIRE OR STRING.

I have never seen (in print) my way of fastening combs when transferred to frames. It's easy. First prepare a bundle of nice smooth corn or cane stalks, about 9 inches long, to reach across the frames. The top joints, which are ⅜ to ½ an inch in diameter, are all right. Larger pieces may be split. Now take a strip of pine, ½ inch wide, and just long enough to reach across the inside of the bottom-board. It should be just as thick as the side rails, so as to form a rest for the middle of the bottom-bar of each frame. This will prevent heavy combs from sagging till fastened by bees.

When the hive-body is placed on the bottom, the first comb fitted in the frame may be placed at the side of the hive with a cornstalk or two between them. If frames are of the self-spacing kind, after fitting the combs they may be all set in with sufficient cornstalks between to keep each comb in place. Then put in a division-board and crowd the frames up snug and tight. When the bees have fastened the combs you may draw out the cornstalks, tip the hive back, and take out the comb-rest.

I see you often fasten combs with twine. Dr. Miller prefers fine wire. If I wanted to be contrary I'd use cornstalks.

Chambersville, Pa. J. P. LYTLE.

[As I understand your method, you simply use cornstalks set down between the frames to keep the combs from tumbling against each other. Somehow this seems a little crude to me, yet I have no doubt it answers the purpose. Cornstalks vary in size, and uniformity of diameter would be an important requisite to hold the combs exactly in the center of the frames. Ordinarily it does not pay to transfer any comb into a frame unless it can be in one solid piece, and cut large enough to make a snug fit against the top and bottom bar and end-bars. Such a comb does not need staying up. In these days of foundation, and a desire to avoid drone comb, it does not pay to use little bits of comb, and fit them against other pieces to make one solid comb. One had far better use a comb-starter fastened against the top-bar, and have them built out into worker comb during the season of brood-rearing.—ED.]

THE NEVER SWARM COLONY BETTER THAN THE FORCED SWARM; THREE GOOD RULES.

The subject of prevention of swarming, as discussed in GLEANINGS, has been interesting. The methods of forcing or shaking swarms have all been practiced here with various success; but we agree with Dr. Miller that the colonies kept at home with no notion of swarming are *best* for honey-producing. I have several colonies, with five years' record, in that line. If swarming could not be prevented I would quit bee-keeping, as high trees and other necessary work prevent close watching of bees. My methods of work have been gleaned from the workers reported in GLEANINGS, and I am still getting new hints to make the work easier each year.

I have three good rules to offer: 1. Mr. Boardman's rule, "Keep all colonies *strong*." 2. Allow no sealed honey or drone comb in the brood-nest during June (from Mr. Doolittle). 3. Careful spacing and arrangement of brood during fruit-bloom, giving room for queen-supers as needed. These apply to Ohio. In Florida seasons are different. NELLIE ADAMS.

Perrysburg, O., Nov. 24.

BROOD IN THE BROOD-NEST FOR FORCED SWARMS.

In J. E. Crane's article on made swarms I notice the words in italics against giving any brood lest they swarm out or start queen-cells, and then swarm. He must have a Carniolan cross in his stock. I know they may swarm with a brood-chamber only partly filled; but I never had a colony with a year-old queen start cells or swarm when I have left them two or three frames of honey, eggs, and brood. If it is liable to happen it could be cured by giving frames of sealed and hatching brood to give the queen laying space at the start to keep her out of the super without using an excluder.

F. DANZENBAKER.

Washington, D. C.

CAUSE OF EARLY SWARMING.

What do you think was the cause of so much early swarming in this vicinity? Before they would go up into the supers and go to work they would swarm again just as soon as they could get ready. This was a general thing all over our section of the country.

The forced swarms did not act that way. They all filled their cases in fine shape so far as tried. S. F. MILLER.

North Manchester, Ind., Dec. 22.

[A light honey-flow, continued day after day, is more productive of swarming than a heavy honey-flow. It seems to be the rule in Texas, when a small amount of honey is coming in every day, that swarming will be the rule of the day; but just as soon as the nectar comes in with a rush, swarming eases up; and that is true to some extent in almost all parts of the United States.

You have given a good testimonial in favor of forced swarms. If your honey-flow starts off very lightly, I would by all means treat all your colonies according to the forced-swarm plan.—ED.]

A GLUCOSE DEALER FINED $25 AND COSTS.

I hand you a clipping from the *Evening News*, of Tacoma, regarding prosecution under food act. R. W. TAYNTON.

Tacoma, Wash., Sept. 11.

> The monthly report of Food and Dairy Commissioner E. A. McDonald for August, shows but one prosecution, as follows: Sample, Honey; brand, Wild Rose; manufacturer, Pacific Coast Syrup Co., San Francisco; tried before Judge George, King County; dealer, Star Grocery Co., Seattle; fine, $25 and costs; analysis—ash, 7 per cent; sucrose, 9.27 per cent; reducing sugar, 61.08 per cent; direct polarization plus 11.2 degrees; direct polarization at 24 degrees minus 1 degree.

[This is good. A few more prosecutions of like nature would stop the nefarious business.—ED.]

IS IT PICKLED BROOD?

Last spring I had a hive in which nearly all the other brood died, and the bees would remove it from time to time. It seemed to die just before being ready to seal up, to the young bee gnawing out of the cell. First it was white; later it would turn brown. There was no odor, neither was it ropy. Later on in the summer I transferred them to foundation, but I guess I was not careful enough, and it did not stop it, although not as bad. I think it will be the same in the spring. After the bees in the old hive had all hatched that would, I put them on foundation, and it was a success. I see a few cells in some other hives, also in hives two miles away from mine. I thought it must be pickled brood.

I have 12 fine combs with honey and pollen, and I should like to save them. Do you know of any way by which it can be done? Albion R. Lehr.

Hallowell, Me., Dec. 13.

[The symptoms you describe tally very closely with those given for pickled brood. I should incline to the opinion that is what it is.—Ed.]

A CORRECTION; NOT A FEEDER, BUT A WINTER COVER.

In Gleanings for Jan. 15, p. 64, editor's comments on the Ferry feeder and cover combined, you say the idea is all right, but a little expensive. You also say, "From my standpoint, Doolittle's division-board feeder would secure to you all the advantages of the feeder illustrated. It has the features of warmth, and, being in the form of a division-board, it can be inserted right down in the brood-nest where there is the greatest heat. It will hold three times the amount of feed."

You have described accurately the advantages of a division-board feeder, and all the qualities you describe are correct; and for fall feeding for a colony to store in its hive for the winter you are correct; but even then a Miller feeder is still better. You have not made a comparison of any qualities or purpose that the Ferry feeder possesses. It is not intended for the purposes you have described. It is intended for a winter cover to protect the bees from the cold and storms of the winter; and at the same time, should you ever desire in the spring to stimulate the colony a little, you have this advantage of the Simplicity feeder in such a position that you can feed and not remove the cover as you would by the way you would in using the division-board feeder. H. S. Ferry.

Mount Vernon, N. Y., Jan. 28.

WHAT ONE OF THE VETERANS THINKS OF THE RAMBLER.

Allow me to say that no publication devoted to apiculture ever contained such sad news as did Gleanings of Jan. 15, in the announcement of the death of J. H. Martin. In his death, one of the brightest lights in bee literature has gone out. I wish I could find proper words to express my sorrow and regrets at his sudden death. Rambler has visited me twice, and the more I saw of him and read his writings the better I liked and respected him. How we shall all miss him in Gleanings! Henry Alley.

Wenham, Mass., Jan. 26.

A DESERVED TRIBUTE TO THE RAMBLER.

Through long acquaintance with the writings of Mr. J. H. Martin I learned to love him, and feel that we, as a fraternity, will sadly miss his noble sentiments and innocent mirth from the pages of Gleanings. I could not realize I loved him so until the sad news of his death came like a blow upon us. Soon A. I., Dr. Miller, Doolittle, and others of the "old guard" must, according to nature, pass to the other side. Dear old Rambler! how consoling to think of him enjoying the society of the Savior, and of the sweet young wife whose early death made his life so pathetic! Peace to his soul and honor to his name. May the ties of friendship tighten more closely about us is the desire of the Rambler's friend,

Odin, Mo., Jan. 27. D. B. Thomas.

BINDING BACK NUMBERS OF GLEANINGS.

Several have recommended wire nails for binding Gleanings. I think I have a much better way to keep them securely bound. Materials required, a straight awl, a large darning-needle, and a strong cord. Wrapping-twine will do if you double it. Take 6 or 8 copies at a time, and punch 3 holes near the back—one near the top, one at the middle, and one at the bottom. When all the copies are punched, first pass the needle downward through the middle hole, then upward through the top-hole, then downward through the bottom-hole, and lastly upward through the middle-hole; draw up snug, and tie the ends across the cord, passing from top to bottom hole. It makes a spring-back binding. In punching the second lot of papers, use one of the first lot as a gauge, in order to have the holes jibe. D. I. Wagar.

Flat Rock, Mich., Jan. 21.

A BROOD-CHAMBER ARRANGED WITH CLEATED FENCE SEPARATORS BETWEEN BROOD-FRAMES.

I have a suggestion to offer for your consideration. Why not, when you arrange a brood-chamber for the reception of a colony, adopt a plan analogous to the one you practice when you prepare a super with fences dividing the rows of sections from each other? Brood-frames with starters would, in this case, take the places of the rows of sections in their section-holders, while fences of suitable dimensions, with spaces wide enough to allow the queen to pass through, set alternately between the brood-frames, would keep them apart, and thus, it might be expected, or at least hoped, would prevent the building of combs so crooked or irregular as to interfere with the ready manipulation of the frames. If upon trial it were found that these fences thus arranged in the brood-chamber served a similar purpose as well as do the fences now used in the supers, the wiring of comb foundation would no longer be necessary; while a narrow strip of foundation as a starter would probably serve as well as or even better than a whole sheet. As soon as the fences would have fulfilled their purpose they could be removed. Only a few, therefore, would be needed.

As a substitute for the no-drip honey-crates, I have been using plain crates made honey-proof by dropping a teaspoonful of hot melted paraffine in one corner, and then by tilting it around causing the paraffine to flow all about the outer margin of the bottom-board of the crate in the angle between it and the sides and ends. A little excelsior is used to keep the sections a trifle off the bottom when packing.

W. O. EASTWOOD.

Whitby, Ont., Jan. 23.

[Fences could be used in the brood-nests when only starters are used to good advantage. Possibly here is an idea worth developing, for it would save quite an expense in foundation. We will try to give the matter a test this summer.

The hot paraffine poured into the bottom of the shipping-case would not be as good as the paper trays nor as cheap.—ED.]

IF BEES ARE DOING WELL OUTDOORS IN SINGLE-WALLED HIVES, JAN. 1, WILL IT PAY TO MOVE THEM IN?

We have 39 colonies; 17 of these we placed in winter quarters shortly after Thanksgiving, and the remainder are outdoors. It is our first wintering indoors. The apartment is perhaps 12×20, off a spacious hog-house; however, the bees are the only occupants. It is well ventilated and dry, but is not protected from cold from below by any wall or any thing of that sort. The building is much colder than a purposely constructed bee-cellar. We removed the last of the bottom-boards from those indoors a few days ago, and all seem to be doing finely thus far. Also those outdoors seem to be experiencing no difficulties. With one exception all of the colonies have gone into winter quarters with heavy stores. Under these conditions would you kindly advise us if, at this time, it would be advisable, under the circumstances, to move outdoor colonies?

There is a tight plank floor in the house. None are chaff hives. We scattered chaff on the floor, then laid 2×4 scantling on edge on chaff, then removed bottom-boards and placed hives on this. In such a building would you consider it advisable to remove bottom-boards? We do not find any thing in GLEANINGS that covers this particular case.) THOMAS BLAKELY.

Mason, Mich., Dec. 29.

[I infer from your description that your winter repository is an upground building. If it is not also frost-proof it would not be a very desirable place to winter bees. The temperature in a repository should not go below 35 degrees, and better not below 40 nor much above 55. The difficulty with an upground repository, such as you describe, is that it is subject to great extremes of temperature. In warm weather it might be up to 60 or 70 inside, with the result that the bees would be very uneasy, and fly out and die. In very cold weather the temperature might go down within a few degrees of what it is outside. Where the bees are subject to such extremes of temperatnre it is far better to have them outdoors; and, if I mistake not, you will find that those in the building will not winter nearly as well as those outside.—ED.]

TRANSFERRING; FORMING NUCLEI FROM ONE COLONY IN ORDER TO INCREASE RAPIDLY.

I wish to ask for a little information. I have a colony of bees and the A B C of Bee Culture. I am making some hives on the American plan, with closed-end frames hanging on a ¼-inch strip nailed near the top. Last year, July 1, I got about a quart of bees; and by feeding lightly I raised a large colony, filling a box hive 12½x15, by 24 deep, inside measure, within 6 inches of the bottom, and put them in the cellar where, apparently, they are doing finely now. I wish to increase next summer (providing they come out all right) to the extreme limit of my ability. If I transfer them by placing a hive on top of the box hive, as described in the A B C book, and allowing them to go above at their leisure, can I take away two or three frames of brood, and form nuclei as fast as the queen fills them, leaving enough to hatch to keep the old colony full, and get queens from you by ordering a few days ahead as I need them during the summer? I prefer this method; for if I should fail in my first attempt I would have the old colony still to try again. I simply wish to raise bees next summer; and how long a notice would you generally require to get a queen here? and wouldn't it be good policy to give my old colony full sheets of foundation to aid them in starting early so as to be in full blast by June 1? GEO. H. PLACE.

Omaha, Neb., Jan. 15.

[Closed-ends frames are all right, but we would advise you to adopt some standard size. The American or Gallup frames—that is, frames nearly square—are very little used now, and hence we would advise you to adopt the Langstroth pattern. The saving in the cost of supplies, if you have to buy them, will be considerable of an item. While you can make increase in the manner you outline, a far better way would be to transfer by the Heddon plan, as described in the A B C book, then you can make a division of the colony afterward, much more satisfactorily. I do not see how you could fail by the Heddon method of transferring.

I would advise the use of full sheets of foundation—that is, if you proceed on the plan you describe.—ED.]

A COLONY WHOSE QUEEN WAS THREE YEARS OLD, AND DOES NOT SWARM.

I have in my possession a colony of bees in which the queen is over three years old. Said colony has not swarmed since it was put into the hive in 1899. She kept her colony very strong all last season, and went into winter quarters strong last fall. The strangest thing in my mind about these bees is that I looked for drones at different times during last spring and summer, and could not find any, either in the hive or among the unhatched brood.

W. W. BROCKUNIER.

Sewickley, Pa., Jan. 5.

[If the bees are on combs built from full sheets of foundation, it is scarcely to be wondered at that you do not find drones in the hive. If there are drone-cells, and no drones reared, it is a little remarkable. It has been said that the presence of a large number of drones in a hive is conducive to swarming. The converse of this claim might be that the very absence of them may indicate that the bees have no notion of swarming. Such a queen should be used as a breeder, if you have not already done so. A queen whose bees are not inclined to swarm, or do not swarm at all, are just the kind of bees we are looking after. Dr. C. C. Miller, of Marengo, Ill., would no doubt be glad to stock up from her. May be if you "work" him right you might get big money out of him for a few queens.—ED.]

CELLULOID AS A SUBSTITUTE FOR WAX IN FOUNDATION.

In your reply to A. B. Anthony, page 987, regarding a substitute for beeswax in foundation, you make mention of several articles that you have tried. Have you ever tried celluloid in thin sheets with cells stamped, and the whole given a thin coating of wax?

Danbury, Conn. FRANK LACEY.

[No, I never tried the substance; but I am satisfied it would be altogether too expensive for the purpose. If I am wrong, I shall be glad to be corrected. But even if it is cheap, I should question very much whether such an article would ever be used by the bees. They would not be inclined to build their wax superstructure on top of the celluloid foundation, and I should imagine they would "stick up their noses," and leave it in disgust. Foundation made of metal like pressed tin, or of wood, has been used; but the bees built their wax on top of the cell walls after a fashion, as they evidently did not like it.—ED.]

YOUNG BEES BEING CARRIED OUT DURING WINTER.

My bees on the 16th of January made a good flight. Some of my colonies brought out young bees nearly full grown. Please tell me the cause, as I can't find any thing in GLEANINGS. I am wintering my bees on their summer stands.

McBrides, Mich. WM. L. STEWART.

[It looks very much as if your bees have been rearing brood, and that this brood had nearly matured, became chilled from a cold spell, and died. In this case the bees, at the first opportunity, would empty out these cells, and dump the contents at the entrance.—ED.]

A MODEL BEE HOUSE AND CELLAR.

My bee-cellar is dug out of hard limestone, and then floored and ceiled all over with matched lumber. The bees winter well in it; but as I have a house built over it (see photographs) the floor is wet on account of the warm air from the cellar. Can you tell me how to keep it dry? The temperature does not vary more than one or two degrees from 44. I expect to put a part of my bees in the house next spring, for an experiment, as it will hold 64 hives without crowding.

M. P. RHOADS.

Browntown, Wis., Jan. 5, 1903.

[There is no way you can remove the excess of moisture except by some scheme of ventilation. Moisture in a bee-cellar does not necessarily do any harm, providing the temperature is kept uniform, or reasonably so, and providing the bees have fresh air occasionally. But, according to Doolittle's experiments, a cellar reeking with dampness, without ventilation, winters bees successfully providing the temperature can be *kept absolutely uniform at 45*.—ED.]

SULPHUR AS A CURE FOR BEE-PARALYSIS.

In July, 1902, I noticed a swarm of bees in my yard that seemed to be in a state of continual agitation. Bees would be running about the entrance, and I could count from 12 to 25 or more bees at any time of day in the grass about the hive, in a dying condition. Some would be on their back, kicking; others would be crawling about, and showed a distinct trembling motion, and all had a sort of greasy, shiny appearance. I knew the queen was young and prolific; but the bees died off so fast they could gather no surplus. I decided it was bee-paralysis. A few months before, I had read an article in GLEANINGS by Mrs. E. B. Hawkins, about sulphur being a cure for the disease. I procured a salt-cellar, filled it with powdered sulphur, removed each comb, and lightly sprinkled the brood. In two or three days I examined the combs to see what damage the sulphur might have done, but found every thing apparently all right. I then gave them another good dose—larvæ, eggs, bees, and all—and in about two weeks the bees had entirely disappeared. Let some one else try it. I will guarantee the sulphur to do no harm.

Kilbourn, Wis. C. H. PIERCE.

What will be the best way to handle a queenless colony next spring? They are heavy in stores. L. W. PARMAN.

[You had better give that colony a queen as soon as you can. Queenless bees are quite apt to succumb during winter, even when they have all other conditions favorable. If you have not a queen that you can get, better unite that colony to some nucleus. If the bees have been long queenless, there will not be much likelihood that they will attack the queen furnished them with the nucleus.—ED.]

NOTES OF TRAVEL

BY A. I. ROOT.

OUR OWN APIARY IN SUNNY CUBA.

It is now the 29th of January, and honey is coming in again. The sound of the extractor is music to me while I sit here, without coat or vest, and write. The bees are too busy to rob, and Mr. Wardell and Stephen are happy. The door to the extracting-room is wide open, and every now and then a great pan of cappings is put in the sun wax-extractor; but the bees, for a wonder, don't seem to care much even for cappings. Yesterday I went out on my wheel to see where the honey came from. The country roads here are little more than cow-paths, or a sort of road made by drawing water with an ox-team on a sort of rude sled, or, rather, stoneboat, made of a forked log. Sometimes the water is drawn in a barrel, but oftener in a natural barrel made by sawing off the bulged part of the trunk of the royal palm. This beautiful palm-tree has its trunk bulged part way up to the top, exactly as a seed-onion stalk is bulged, and for the same reason—to give it strength to stand the blast, with the smallest possible amount of material. This bulge is hollow, or filled with only a sort of loose pith. I followed one of these paths in its devious way past the Cuban cottages, down to the river. Whenever you can strike a trail where they have been hauling water you have a *fine* wheel-path. Wheels are so unusual here that people stop their work and often rush out of the houses to see one pass. The river (as it is called) has a swift current over a beautiful pebbly bottom; and as the water comes from a sulphur spring back in the mountains it has the reputation of possessing medicinal qualities. Be that as it may, it certainly makes me feel like a new man whenever I take a bath in it. Well, when I was taking my accustomed bath I thought I heard bees overhead, and investigation a little later showed a great quantity of them humming about the top of a royal palm, close to the water's edge. This palm bears great bunches of nuts, perhaps all or more than you could wheel on a wheelbarrow, and they are used here only for feeding swine. In fact, they are almost the only feed they have for pigs. As the lean pork is about the best I ever tasted anywhere, it may be owing to this "nut diet." I wonder if our good friends at Battle Creek, Mich., couldn't see their way to "let up" a little on flesh for food if it were produced by exclusive nut diet. How do they get these bunches of green nuts from the tops of these great trees? Why, men trained to the business, with a peculiar rig of stout rope, climb the trees and cut off the clusters for five cents a tree, and I am told some men will climb over 100 trees in a day. Do you say I am writing about pigs, etc., instead of our apiary? Not so. Listen. After the bunch of nuts is cut off, this wonderful tropical tree proceeds at once "to grow more nuts to feed more pigs," etc.; and one man said a thrifty tree would give a crop of green nuts every month in the year. Another man said, not so many as that, but that it *would* send out a great quantity of blossoms in a very short time after the nuts were gathered, and I found the bees just roaring on these great loads of blossoms. I had for some time suspected the honey, at least a large part of it, came from this source, because the bees were going in great numbers in the direction of the palm forests.

CAPPINGS; HOW SHALL WE RENDER THEM INTO WAX?

With the taking of 14,000 lbs. of honey there is, of course, quite a lot of cappings, especially as *we* allow the combs to stay in the hives until most of them are sealed over. I have heard some say we could get just as much for our honey, whether sealed over or not; but we do not believe in that sort of doctrine, even in Cuba. Good thick well-refined honey is worth more for *any* purpose than thin raw honey that may ferment, and burst the barrels. What shall we do with all these cappings? First, we are to drain all the honey out possible; then (according to *my* notion) we are to save *both* wax and honey, and we want both in the very best shape possible. The solar wax-extractor is the only thing to do this, so far as I know. All steam and boiling-water arrangements would spoil the honey. Some Cuban bee-keepers say the honey sticking to the cappings is not worth the trouble; but I can not as yet agree with them. A plan for rendering all wax, in use here, is to make a stout tight box of plank, with a bottom of galvanized iron. Set this on bricks, and build just a small fire under the iron bottom, so as not to scorch or burn the wood sides. Put in a little water, then your wax. When melted, dip the clear wax from the surface and pour it into tubs made by sawing a barrel in two. To get the wax out of the tubs, loosen the top hoop or hoops. I saw one huge cake of wax taken out of such a tub; but in doing it a gallon or two of thick dark honey spread about on the ground. With honey at 35 to 40 cts. a gallon, the loss was not much; but if this honey had been taken out with the solar extractor it would have been the *very best*, for all honey obtained from cappings is thicker and *riper*, and better for table use (to my notion any way), than any that comes direct from the honey-extractor. Of course, the solar wax-extractor is slow, but a little attention of a minute or two once in a couple of hours is all it needs, and I think a large size will keep up with any apiary if it is kept going whenever the sun shines.

We have found trouble so far in getting the bees to rear brood in the winter time. The weather is certainly warm enough, and pollen is coming in great plenty; but the brood-nest is apparently so filled with honey that the queen can not find a place to deposit eggs. I have been very reluctant to accept this as an explanation ; but other bee-keepers assure me such is the case, and some of them say our red-clover strain is worse than any other in thus filling every empty space with honey. I have suggested getting hybrids, or, better still, some of the Syrian or Holy Land bees, that are such *persistent* raisers of brood in season and out of season ; but the objection is made that they swarm so much the remedy is worse than the disease. All agree the red-clover bees are the fellows for honey if we could only keep up the population of the hives. Throwing out the honey with the extractor seems to be the only remedy, and some seem to think the great objection to producing comb honey here is the filling of the brood-nest with honey so no young bees can be reared. The temperature for the last 15 or 20 days has been from 75 to 85, day time, and 65 to 75 at night. With 500 colonies in one yard there has been considerable trouble with robbing, a great part of the time, whenever we attempt to take out and put back the combs in extracting. We usually take out from 75 to 100 combs (not taking any with unsealed brood), before doing any extracting. After these are emptied we take out a similar lot, putting the emptied comb in their places. A tent is put over the hive when lifting out the combs and brushing the bees off. There are altogether too many bees here in one spot to manage queen-rearing successfully.

TEMPERANCE, HEALTH NOTES, ETC., IN CUBA.

A very good friend of mine said, "Now, Mr. Root, you must not go and write up all the good things about Cuba, and put a rosy coloring on it all, and say nothing about the bad. Be honest and fair, and tell the bad as well as the good."

Perhaps his timely injunctions are needed, especially as my disposition is toward "thinketh no evil," and, besides, it does seem unkind, and out of place, to mention unpleasant things when every one has been so kind and courteous. For instance, a beautiful little woman (a bee-keeper's wife) apologized for giving me a bedroom that was so filled up with crates of nice comb honey I could hardly get into bed; and I *did* have to turn edgewise to get to my wash-bowl and pitcher in the morning. I might have grumbled at such accommodations, and complained of the "homes" of Cuban bee-keepers; but what would these people, or *anybody else*, have thought of me? I will tell you what I said, and I said it *honestly*, too.

"My good friends, years ago, when almost a boy, I had *dreams* of great piles of beautiful comb honey, and very likely I shall dream of such things to-night; and the beauty of it is *now* and *here*, that, should I wake up and look about me, I shall find these extravagent dreams have all come to be a *reality*. Don't you worry about putting me to sleep in a place with *such* surroundings."

Now in regard to temperance in Cuba. Not only do almost all the stores in Havana sell drinks, but all the stores in the country towns sell drinks, and furnish coffee and refreshments. In Paso Real there are nearly a dozen stores (*general* stores we would call them in the North). These all sell drinks, and sell to everybody, black or white; man, woman, or child. Anybody who has a nickel can get a drink. This is bad, and no doubt much money is paid for drinks that should go for food or to clothe the naked children; but to my great surprise I have not yet seen any one the least bit *drunk* in Cuba. If I am right, there is no tax or license on intoxicants. If one wants to get drunk he can do it with very little money. I can only guess *why* intemperance is not worse with the bars all down, as it were. First, there are no screens, and no secrecy about these drinking-places. It is all in *open daylight*. No one goes behind the counter or into any back room.

Secondly, there is very little beer sold, comparatively. In Havana there are a few places that advertise beer, but little or none in the country and country towns. The common drink is some sort of red wine, served in little glasses. This wine, I am told, is brought from Spain, in the "garafones" pictured and described on page 903, Nov. 1. I have never tasted it, and don't know how intoxicating it may be.

There are police, or home guards, all over the land, on the trains, in city, town, and country; but I can not see that they have much if any thing to do. Perhaps their constant presence is a restraint to disorder.

Again, we hear much of the Cuban coffee —the "drip" coffee that friend Poppleton told us how to make eight or nine years ago. Now, this is the finest coffee (if one wants coffee) I ever tasted; but the average Cuban does not drink a great quantity of it.

When I first came here I had some of my old trouble in ths tropics—a tendency to chronic dysentery — and I began to worry for fear I could not get my favorite diet of toast and scalded milk; but I soon found it was no trouble at all. At almost any restaurant they would come to the table with two tea-kettles, one in each hand. First they would pour into a large tumbler scalded milk until you indicated with your finger how high up on the glass; then coffee half an inch, or a whole inch, as you desired, was put in to fill up. Now please stick a pin right here—I want to digress.

Some years ago I told you of a new "health fad"—going without your breakfast. A book has, in fact, been written about it, and lots of good people tell us this simple thing would almost run doctors out of business. Huber has, for the last two years, had only two meals a day from preference, and says now he likes that way better. Well, almost all Cubans have been living this way for years past, for centuries for aught I know, and the greater part of the Americans, when they get here, fall in with the fashion. It made me think of the "new onion culture" that was, a few years ago, heralded by all the agricultural papers as a "new discovery" of great value. When I got over to Bermuda I found they never grew onions any other way, and had followed it for probably a hundred years or more. Traveling in other countries often takes the "conceit" out of a body. There is one little thing about this "ten-o'clock breakfast," however, that should be mentioned. These good people take a little *coffee* when they first get up. Now go back to where we stuck that pin.

The coffee is *mostly scalded milk*. Do you wonder they get along so well on only two meals a day? Once more: A very bright woman (there are many of them here in Cuba) told me confidentially they scalded their milk and put a little salt in it so it would *keep* in this warm climate. I imagine they have it on hand at all hours in the day; for twice when I wanted to take a wheel-ride, and start about daylight, I found a big tumbler of hot scalded milk, flavored with a little coffee, with a roll right handy. On each occasion I rode eight or nine miles with ease after this repast; but it was on the beautiful stone road called the "calzada." Just one more pleasant fact:

Mrs. Root can tell you that I am always better pleased with my food when it is a little *scorched*. Whenever she (or any other *good* woman) begins to apologize for overdone cooking, I can always say honestly, "Oh! don't worry; it will please *me*, at least, all the better." Well, quite a few of the Cubans have the good sense to prefer greatly their milk just a little "scorched," and that hits me to a dot.

I said I could not learn there was any legislation in regard to the sale of drinks. There is a law, however, in regard to drinking-*water*. Every vender of drinks is obliged to furnish, free, good drinking-water, and he is furthermore required to wait on his free-water customers before any other. He must have this good water so handy he can set it before whoever calls for it, without a moment's delay.

The first day I got into Havana I rode out to the terminus of one of the electric railways. The car stopped close to an outdoor drinking-stand. As the people rushed up to the counter, saying something I could not understand, he set out a row of *large* glasses of very clear nice-looking water, and every man that took a glass poured down the whole of it and went off. I was surprised to see these people drink such a lot of water, and more surprised to find not one even stopped to thank him. I was afterward told the city, or the country, as the case may be, paid him for doing this, and therefore no thanks were expected. Oh how I would rejoice to see every saloon-keeper (as long as we *must* have them) in our land, and the keeper of soft drinks also, paid by the government for furnishing free water in like manner! And I would rejoice *still more* to see the whole liquor-traffic *out in the open air*, in like manner.

A little time ago when there was a discussion in regard to removing the screens from the saloons of Cleveland, and having no back rooms or back doors, a brewers' convention frankly declared it would "knock out" from one-half to three-fourths of their trade. To be *sure*, it would. "Men love darkness rather than light, *because* their deeds are evil."

I fear I am not telling many of the bad things about Cuba, after all; or if I do I find some good feature about it, or some redeeming thing to follow. Please bear with me a little while I speak of something not often mentioned in print, even though it is a thing of *very* great importance concerning the health of the multitudes in the city.

A man at our hotel told us that, only four or five years ago, it was the custom for men and boys, little and big, to respond to the call of nature on the best streets in the city of Havana, in *open daylight;* and it had been the fashion so long it could not be stopped until the health authorities made water-closets at the corners of the parks, and close by the busy streets. These closets are made of galvanized iron, rather ornamental than otherwise, and large enough to accommodate three or four men at a time. Streams of running water keep the sanitary conditions right. At first I was puzzled to know how they kept down vandalism, for I could not believe these people were an exception to the world at large in this respect. Investigation showed that, while the occupant was mostly concealed from view, the lower part of the structure was open to view. The police, or home guards (as well as everybody else) could see the occupant's feet, and nearly up to his knees; and he could see the premises were at all times clean and tidy. When I took in, after several days' observation, what all this meant, I fairly groaned in spirit to think no American city, at least so far as I know, had ever adopted any thing of the sort.

Just a few weeks ago I got off an electric car in a northern city. I asked for a closet, and was referred to a saloon. Of course, the saloon-keeper has a nice closet (or should have), and you are expected to buy something if you use it. That is right. *He* should not use his money to accommodate the whole wide world, without pay. Instead of going to the saloon I went to the nearest hotel, and found a very plain notice, "These closets are for the accommodation of the guests of the hotel. Other people *must* go elsewhere." I went to the clerk with a handful of change and told him I came in on an electric car, and expected to go out on another in ten minutes, and that I was abundantly able and willing to pay for all I wanted. He smiled, but refused to take any thing. I am told this excellent sanitary arrangement was planned and carried out by Geo. E. Warring, who gave his life in planning sanitary sewage for Havana, assisted by Gov. Wood. Very likely our electric railways are planning something nice, and we hope our cities will combine with them and bring about a much-needed reform.

THE GIANT GIBRALTAR ONION; SMALL GREENHOUSES, ETC.

I got one ounce of seed of you and put out 600 in the hot-bed. I thought for a while they were not going to be any good, as they ran to necks instead of bottoms. I bent the tops down a time or two, and about half of them made good large onions. The rest of them are in the garden yet. They are fine onions to eat raw, very mild.

I want to put up a small greenhouse to raise tomato-plants and other garden-plants. I thought of making it 16 feet long, a bed on each side 3 feet wide. Would it do to cover it with oilcloth? And as to heat, if I put a heating-stove in the far end, and run a stove-pipe along back to the vent, would it heat it sufficiently? How high would you make the beds, and how deep? I shall be thankful for your advice.

Dundee, Oreg. S. Minchin.

Friend M., I do not think I would risk oilcloth for your plants. It might, however, do in your locality if you have no heavy snows. Cloth is better, of course, than no protection at all; but it is seldom used where one has artificial heat like the stove you mention. On page 29 of our book "What to Do" is a little greenhouse of that kind made of sashes. This gives a path through the center 2 ft. wide and about 3 ft. deep. The beds are about 4½ ft. wide. One can stand up in such a structure right under the ridge. We used such a greenhouse very successfully by warming it with steam-pipes. I think you would be better pleased to use glass sashes than to undertake to do any thing with oilcloth. Our book on tomato culture gives very full directions for using cloth-covered beds in localities where there is no snow and the weather seldom much below the freezing-point.

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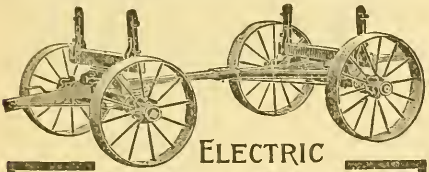

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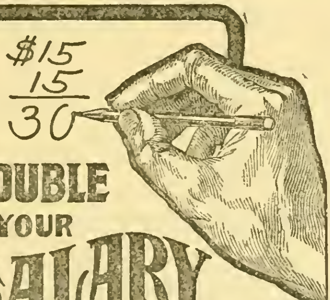

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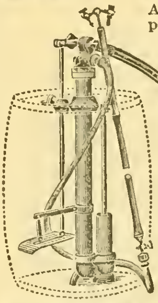

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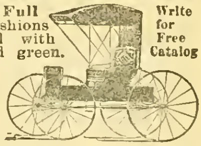

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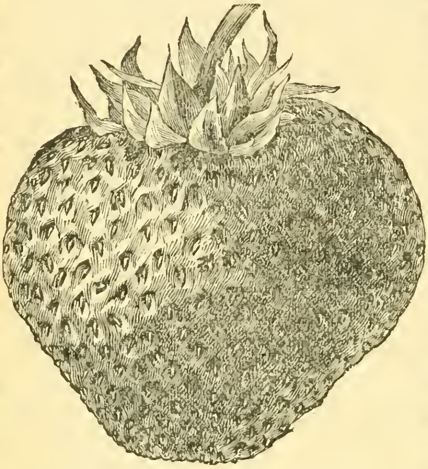
Great Crops of

Strawberries

and How to Grow Them



The best book on strawberry-growing ever written. It tells how to grow the biggest crops of big berries ever produced. The book is a treatise on **Plant Physiology** and explains how to make plants bear **big berries and lots of them.** The only thoroughbred scientifically grown **strawberry plants** to be had for spring planting. One of them is worth a dozen common scrub plants. They grow **big red berries.** There is **GOLD** in strawberries and bees if you go at it right. The book tells how to dig it out. The book is sent free to all readers of Gleanings in Bee Culture. Send your address to me.

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of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

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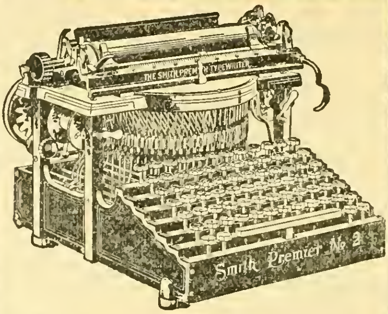
For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.



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Catalogue Sent Free.

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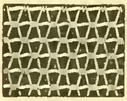

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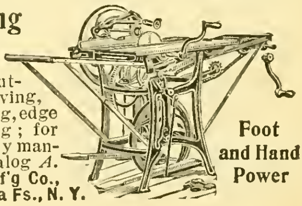

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BURPEE'S Largest Mail-Order Seed House in the World. ☞ In buying **BURPEE'S SEEDS** direct by mail you get your money's worth in the **Best Seeds that Grow**—and you have your choice of **Rare Novelties for 1903**, which cannot be had elsewhere. **Write to-day** (a postal card will do) for our **complete catalogue** —**FREE to all** who intend to purchase seeds. **W. ATLEE BURPEE & CO., Philadelphia.**

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Michigan Northern Grown are always the best. 30 best varieties. Blight proof, enormous yielders. Highest quality, lowest prices. Sold in any quantity one pound to a carload. 100-page Catalogue FREE on request.

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Largest growers in America of Vegetable, Field and Flower Seeds.

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100 Varieties. Also **Small Fruits.** Quality unsurpassed. Warranted true. Very cheap. **3** sample vines mailed for **15c.** Descriptive price list free. **LEWIS ROESCH**, Fredonia, N.Y

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Fruit Packages of All Kinds.

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MARIE STRAWBERRIES

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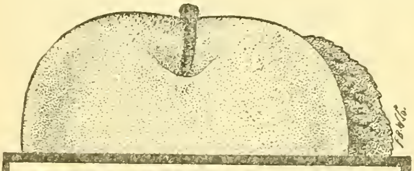

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above all others is the one who needs to spray. Good, smooth, even sized, disease-free, salable apples are now an impossibility without spraying. For the apple man's use nothing quite equals our

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Submerged brass cylinder, brass ball valves, everlasting plunger packing, automatic agitator. Unequalled for durability, ease of operation, free water ways. Eighteen styles of sprayers. Catalogue with formulas and testimonials free.

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They will do as much work; being all brass, are lighter to handle, and are more durable; will generate a higher pressure, thereby making them the easiest pump to operate on the market. Write for catalog, and get treatise on spraying, free. Agents wanted. J. F. GAYLORD,
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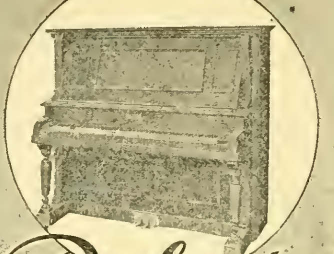

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Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the

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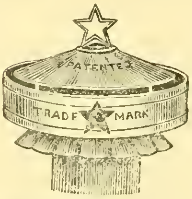

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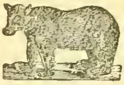

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200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

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POULTRY JOURNAL How to Make Poultry Pay. A paper worth oadkllar, butwill send it to you one year on trial, including q oo, Plans for Poultry Houses, for 25c. Sample copy FREE.

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about his business. No saying is truer than "Knowledge is power." Many bee-keepers have failed who might have succeeded, and many who have succeeded might have enjoyed greater success had they possessed all of the knowledge it would have been possible for them to secure concerning their business. When I was a bee-keeper, before I began publishing the REVIEW, I found it to my interest to read all of the bee-journals published. Time and again a single item was worth dollars to me. I doubt if it would be possible for a practical bee-keeper to read the BEE-KEEPERS' REVIEW one year without gaining information worth many times its cost; and, just *at present*, a new subscriber can get two years for the price of one. That is, to any one who sends $1.00 for the present year, twelve back numbers will be sent free. Most of them, but not all, will be 1902 numbers, 24 numbers for only $1.00.

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Gleanings, The Modern Farmer, and either the Fruit or Poultry paper, **$1**

This ad. will not appear again. Do it quick, if you want a bargain. Address

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THE through train service of the Chicago & North-Western Railway from Chicago to Omaha, Denver and the Pacific Coast on the west, the Black Hills and Dakotas to the northwest and to Milwaukee, Madison, St. Paul, Minneapolis and Duluth on the north, is as nearly perfect as modern and skillful management can make it.

The Overland Limited, a magnificent electric-lighted train, less than three days Chicago to San Francisco, daily.

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Counting Chicks Before Hatching
is not safe unless you have an
IOWA
ROUND
INCUBATOR

R. C. Bauerminster, Norwood, Minn., got 493 chicks from 503 eggs. He followed directions, the machine did the work, because it was built on right principles and by good workmen. The **IOWA** has fiber-board case, does not shrink, swell, warp or crack. Regulation and ventilation perfect. Our free book gives more testimonials and full particulars. Everything about incubation free.

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PER EGG CAPACITY

The Sure Hatch Incubator is a high grade machine throughout, (over 30,000 in use) anyone can operate them, and when it is considered that we pay the freight and that the machines are all larger than rated capacity and are sent on 30 days trial, the egg capacity is the cheapest of any good incubator on the market. Our Free 1903 Catalogue was made to order for the poultry raisers—poultry and egg record tables, etc. A big book full of good things. Address nearest office.

SURE HATCH INCUBATOR COMPANY.
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YOU'RE LOOKING
for just such a machine as Miller's new
Ideal Incubator,
the perfect hatcher, sent on **30 days' trial.** Absolutely automatic. Test it yourself. Big poultry and poultry supply book **free.**

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RELIABLE
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110 Yards Flue Poultry.

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of the experiences of a lot of practical farmers have been worked into Page Fence. It's a farmer's fence, for all farm and stock purposes.

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SUCCEED WITH A SUCCESSFUL

INCUBATORS
are usually bought because the purchaser wants to make more money out of his chicks. Whether he does so or not depends entirely on whether he gets the right kind.

The Successful
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make money. You don't have to test them. We do that. We know what they will do when they are sent out. If you want to find out about a good low priced machine that always works and never shrinks or swells with use, write for one of our catalogues, 5 in 5 languages. An incubator book that goes to the heart of things and tells the truth. Sent free anywhere. Write now.

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INVINCIBLE HATCHER CO. | No. 64 CAT FREE ESTD. 1893 | SPRINGFIELD, OHIO.

WE WILL SAVE YOU FROM $10 TO $45 on almost any kind or style of machine.

Sold direct from factory saving all salesmen's expenses and dealers or agents exhorbitant profits. Our machines have modern features not possessed by any others. **Ball-Bearing Stand;** finest attachments FREE. **Latest design woodwork,** the stylish **swell front, polished oak.** Guaranteed to be better than machines sold for twice the price. **SHIPPED ON APPROVAL** anywhere in U. S. Guaranteed 20 years.

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ARLINGTON Highest arm made, Disc Tension. Independent take-up, same as Singer, Wheeler & Wilson and Standard. $55.00 Regular 5 Drawer Drop Head $17.75 $65.00 Automatic Lift, Drop Cabinet $19.75 $75.00 Beautiful 2 Door Desk Cabinet $28.75

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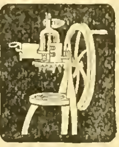
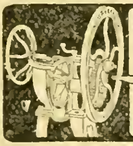
BRINGS MORE EGGS

Makes healthier fowls. All latest improvements.

SENT ON TEN DAYS' FREE TRIAL.

No money until you're satisfied that it cuts easier and faster than any other. Isn't that better than paying cash in advance for a machine that you never saw? Catalogue free. **F. W. MANN CO., Box 37, Milford, Mass.**





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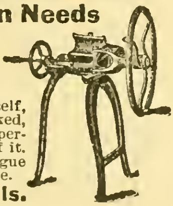
Every Chicken Man Needs a green bone cutter.

The Adam



alone is ball bearing, it cleans itself, it cannot become clogged or choked, it is fed at the pleasure of the operator. You will want to know of it. Send for our Illustrated Catalogue No. 39 before you buy. Sent Free. **W. J. ADAM, Joliet, Ills.**

WILSON'S
New Green Bone, Shell and Vegetable Cutter for the Poultryman.

Also Bone Mills for making phosphate and fertilizer at small cost for the farmer, from 1 to 40 horse-power. Farm Feed Mills grind fine, fast and easy. Send for circulars. **WILSON BROS., Sole Mfgrs., Easton, Pa.**

$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

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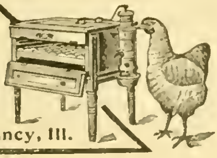

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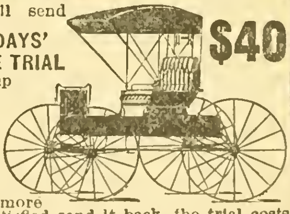

we will send you on **30 DAYS' FREE TRIAL** **$40** Hitch up to it, use it freely. When the 30 days are up, if you are not more than satisfied send it back—the trial costs you nothing. Our free catalogue tells all about it and our other bargain offers. Send for it today. A full line of harness.

OHIO CARRIAGE MFG. CO.,
Station 27 Cincinnati, Ohio.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

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E. R. ROOT, Editor of Apicultural Dept.
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SPECIAL NOTICE
Special Notices
By Our Business Manager.

JAPANESE BUCKWHEAT FOR SEED.

If any of our readers not too far distant have for sale any choice Japanese buckwheat suitable for seed we should be pleased to hear from them with a sample by mail, and a letter stating how much you have to sell and what you ask for it. There was so little grown in this vicinity, owing to unfavorable weather, that we have not secured our usual supply for seed.

BRASS SMOKERS.

While we never have appreciated any great advantage in a smoker made of brass over the ordinary tin ones yet, because some prefer them, we are prepared to furnish all our new styles, except the Junior, in brass at 25 cents each more than the tin; and in these the binding on the bellows as well as the hinges and legs will be of brass in addition to the brass fire cup. We have on hand a few of last year's style Corneil smokers of brass which we offer at $1.00 each. By mail, $1.25.

DELAYED SHIPMENTS.

Owing to the inability of some of the railroad systems of the country to handle the immense amount of freight of all classes there have been orders in force on several lines refusing to receive freight of a general nature for quite a number of days. In this way a good many shipments have been delayed in reaching destination, and some we were unable to ship promptly because they would not be taken till the embargo was lifted. We mention the matter here so that we may not be blamed for delays beyond our control.

BUSINESS BOOMING.

We have already shipped since September, on the business of this year, over sixty carload shipments of bee-keepers' supplies against less than 45 up to the same date a year ago. Notwithstanding this we are as badly crowded and behind on orders as we ever were at this season, having on hand unfilled orders for more than twenty carloads.

The outlook from almost every direction, as near as it can be estimated at this time, is most promising for a favorable season. We hear of abundant rains in Southern California, which gives promise of a good season there; also in Southern Texas. Don't put off too long the placing of your order for your season's needs or you may be disappointed in the time you receive them. We allow an early-order cash discount of 3 per cent for orders accompanied by the cash this month, which it is worth your while to take advantage of.

Convention Notices.

A bee-keepers' institute will be held March 2 and 3, in Canandaigua, N. Y. The Ontario County Bee-keepers' Association will hold its regular annual meeting in connection with this institute. Prof. Frank Benton has been engaged by Director of Farmers' Institutes, Mr. Dawley, to attend this meeting.

Naples, N. Y. FRIEDEMANN GREINER, Sec.

A series of bee-keepers' institutes will be held in this State as follows: Canandaigua, March 2, 3; Romulus, March 4; Auburn, March 5; Cortland, March 6 Fulton, March 7; Syracuse, March 9, 10; Amsterdam, March 11. Prof. Frank Benton, of Washington, D. C., who is furnished by the U. S. Department of Agriculture at the expense of the Bureau of Institutes of the State Department of Agriculture, will address the meetings. The New York State Association of Bee-keepers' societies will hold its annual meeting at Syracuse, March 10, at 10 A. M., in the City Hall. Prof. Benton and other prominent bee-men have informed us of their intention to attend this meeting, and a profitable and interesting session is in store for those who attend. Special rates have been secured for entertainment at the Manhattan Hotel, Fayette St., at $1 25 per day.

Romulus, N. Y. C. B. HOWARD, Sec.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15 00 per dozen. Untested, $1.00 each; $5 00 for 6; $9 00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A few bees on L. frames. Write, stating price, etc. H. W. COLEY, Westport, Conn

WANTED.—To print your return envelopes, 25 white XXX No. 6, for 10c. THE BEE FARMER, Woodstown, N. J.

WANTED.—Bees on shares. Best and surest locality in the State. Also will buy bees. Address B. F. HOWARD, Hayt's Corners, N. Y.

WANTED.—Boy or young man for work in greenhouse and truck garden, with some bee, poultry, and farm work. Steady employment to the right man C. WECKESSER, Marshallville, O.

WANTED.—By a girl, a girl as partner, age 16 to 30, to buy and operate a small poultry, fruit, and bee farm in Missouri or Illinois, mainly poultry. About $100 apiece necessary to begin, balance time payment, about $500. Enthusiasm and business ability desirable. The very best of references as to integrity and character required. For particulars address Miss H., care of The A. I. Root Co., Medina, Ohio.

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To correspond with some young man who wants to learn the bee business.
H W. COLEY, Westport, Conn.

WANTED.—To sell or exchange an automatic gauge lathe and one broom-handle lathe Address
W. S. AMMON, 216 Court St., Reading, Pa.

WANTED.—To sell basswood-trees for spring planting. One to four feet, 10c each; 10, 75c; 100, $5.00.
G W. PETRIE, Fairmont, Minn.

WANTED.—To sell 50 colonies of bees at $3.00 each. Or bee pasture wanted June 1 for 400 colonies.
C. D. BROWN, New Castle, Cal.

WANTED.—To exchange 160 acres of good land in Finney Co , Kan., 17 miles north of Garden City, for bees; a bargain. Address
GEO. R. WILLIAMS, Box 104, Ottawa, Ill.

WANTED.—To exchange Root's hives for comb honey complete, for B. P. R. and S C. B Leghorn chickens. Write me PERRY FOCHT,
R. F. D. No. 1, Wapakoneta. Ohio.

WANTED.—To sell, or exchange for stock 3 0 colonies of Italian bees in frame hives, with comb-honey super and honey-house; bees at Hotchkiss, Colo. Address S. W. WEEKS, Delta, Col.

WANTED.—Forty colonies Italian bees in 8-frame L. bodies; strong colonies and plenty of honey; satisfaction guaranteed; $4.00 each, shipped in April and May. W. E. YODER, Lewisburg, Pa.

WANTED.—A number of Italian colonies on shares; must be No. 1 in every particular. Let me hear from some good reliable men only, with full particulars FRED P. ELSHEE, L. B. 56, Waverly, N Y.

WANTED.—To sell 10 bbls. White Bliss Triumph potatoes—a little sunburned or green, but all right for seed—not sorted, $2.00 per barrel; will ship in the spring. J. W. BITTENBENDER, Knoxville, Iowa.

WANTED.—A buyer for a copper liquefying and filling tank, capacity 400 lbs. of honey, practically new; will sell at a bargain. For full particulars, price, etc., address
IRA D. BARTLETT, East Jordan, Mich.

WANTED.—To sell catnip-seed grown on mammoth cultivated plants, at 25 cts. per oz.; special price in quantities. Honey producing artichoke tubers or sprouts, 50 cts. a peck.
JOSEPH M. MARTIN, New Carlisle, Ind.

WANTED.—To sell 50 stocks of Italian bees, 50 patent hives, stock of tools, implements, bee-supplies, and foot-power Barnes saw at bargains; all new. Cause, lost health and use of right hand. Write.
C. S. INGALS Morenci, Mich.

WANTED.—A man with small family to work a good farm of 40 acres, and an up-to date apiary of 200 colonies, on shares; or can work the bees without the farm. A very good chance for the right man.
W. F. FORBES, Plainwell, Mich.

WANTED.—Farm hand with no bad habits, that wishes to learn bee-keeping. I prefer one that wants steady employment. I keep about 500 colonies, and run for both comb and extracted honey. Please state wages wanted.
W. J. STAHMANN, Bruce, Wis.

WANTED.—A boy of fourteen to eighteen years of foreign parentage—German or French preferred—to work in apiary or on farm. An excellent opportunity is offered to the right party to work into a good paying business, as I want to retire as soon as possible A good Christian home for a boy of good habits. For full particulars address A. MOTTAZ, Utica, Ill.

WANTED.—To sell my formula for protecting fruit-trees from rabbits, mice, borers, etc. My own discovery, after trying almost all other methods only to fail. Guaranteed not to injure trees. Cheaper than any other process. Only $1 00 The secret worth many dollars. Agents wanted Big profits Address
ORCHARDIST WOLFE, Gwenndale, Ind. Ter.

WANTED.—Comb to render into wax; will pay cash.
A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange Angora goats for any thing useful. ED. W. COLE & Co., Kenton, Ohio.

WANTED.—Bees in Delaware and Washington Co., N. Y. S. W. MUDGE. Glen Cove, N. Y.

WANTED.—To exchange a Root foundation-mill, 10 inch, almost new, for offers.
W. H. LAWS, Beeville, Texas.

WANTED.—Names and addresses of those who want good books or sheet music. Ask for what you want. M. T. WRIGHT, Medina, Ohio.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. KNAPP, Rochester, Ohio.

WANTED.—To sell thick-top L. frames, in flat, from yellow pine, at $8.00 per 1000, f. o. b.
G. F. TUCKER, Blountstown, Fla.

WANTED.—A second-hand foot-power saw for hive-making, also Dov'd hives in flat (new), bees, and extractor. P. W STAHLMAN, West Berne, N Y.

WANTED.—To sell a 10-h.p. horizontal engine with upright boiler, with pump, smoke-stack, and all connections, for $125.
J. W. BITTENBENDER, Knoxville, Iowa.

WANTED.—To exchange a large list of second-hand goods, as good as new, for foundation, mill, and extracted honey. Address
QUIRIN THE QUEEN-BREEDER, Parkertown, Ohio.

WANTED.—To exchange a 22-cal. 27 shot Winchester rifle, and an outfit complete for making crayon portraits for a good incubator, bicycle, graphophone, or camera. D. B. THOMAS, Odin, Mo.

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. TYLER BROS., Nicolaus, Cal.

WANTED.—Bee-man to assist in running 200 colonies Write, stating your experience, and wages required to W. R. ANSELL.
Apiarist, G. N. Ry., St. Paul, Minn.

WANTED.—You to read what A. I. R. says on page 36 of GLEANINGS, Vol. 31. Order this book at once, and write me for prices on ginseng seed, or other information you want.
A. P. YOUNG, Cave City, Ky.

WANTED.—To sell or exchange for bees or supplies one McCormick corn-shredder, been used one week, just as good as new; and one McCormick corn-harvester, been used two seasons.
C. L. PINNEY, LeMars, Iowa.

WANTED.—For cash, 250 or 300 colonies of bees in ten-frame hives; extra combs also. Prefer those that have been run for extracted honey in the Southern States. State prices on cars and what you have for sale. J. D. RHOADS, Las Animas, Colo.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no drip honey-cases for plain Danz. and 4¼×4¼ sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER.
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell 50,000 well-rooted strawberry-plants, grown from new beds. Senator Dunlap, and 6 other choice varieties 25 to 40 cts. per hundred; 10 per cent discount in lots of 500. Also eggs from gilt-edge Barred Rocks, and Vandresser laying strain. White Leghorns, $1.00 per 15.
P. HOSTETLER, East Lynne, Mo.

WANTED.—Owing to recent death of my husband I want to sell my bees and entire outfit, consisting of 200 colonies of bees now located in three apiaries; two locations on Mangrove Island to move bees to in summer, three boats including one gasoline launch, all necessary appliances to run for extracted-honey. To those interested I will give full particulars.
MRS. ANNA M. KING, Wabasso, Florida

PAGE & LYON,
New London, Wisconsin.

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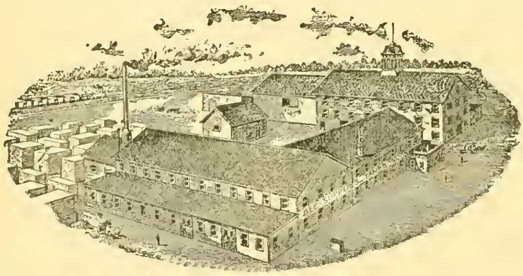

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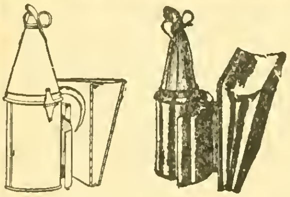

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Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
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Bingham Brass Smokers.

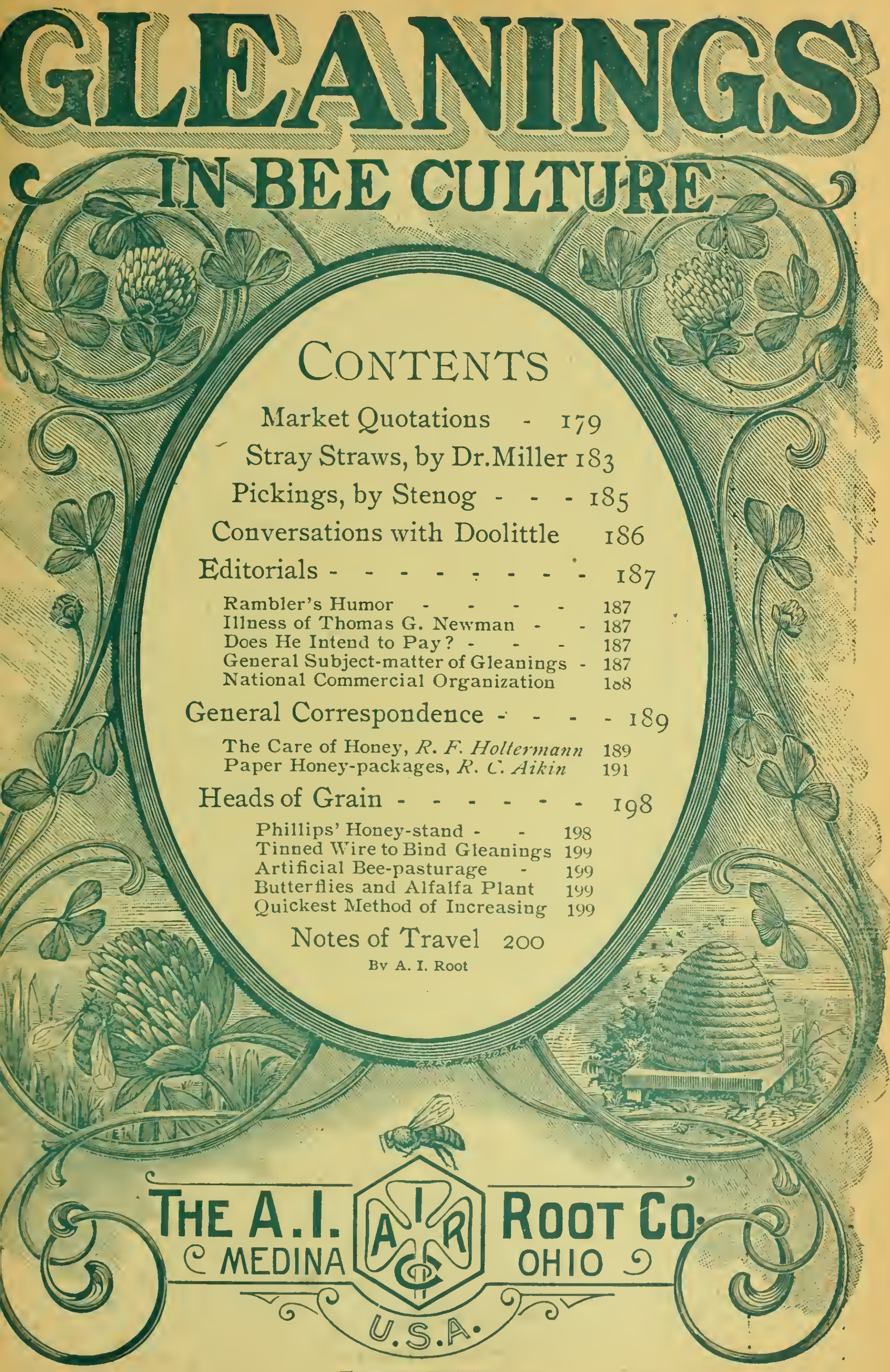
Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI MARCH 1 1903 Number 5

GLEANINGS

IN BEE CULTURE



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By A. I. Root

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U.S.A.

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Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Milwaukee.—The honey market here is in a very healthy condition The receipts are more than for some time past, and a fair demand exists, especially for extracted, and we lack for a better trade as the spring time comes on. We continue to quote A No. 1 comb in 1-lb. sections in clean cases, 16@17; No. 1, 14@16; old or mixed colors, 8@13 Extracted white in barrels, cans, etc., 8@9½; amber, 7@8½. Beeswax, 28@30.
A. V. Bishop,
Feb. 16. 119 Buffalo St., Milwaukee, Wis.

Albany.—Honey market is firm with light stocks White comb, in good condition, 15@16; mixed, 14@15; buckwheat, 13@14. Extracted buckwheat, 7½; white, 7½@8 Beeswax wanted at 30. Our market is going to clean all out of honey this season, and carry none over.
MacDougal & Co.,
Feb. 10. 375 Broadway, Albany, N. Y.

Cincinnati.—The comb-honey market continues to be draggy, and hardly any demand, and therefore prices have weakened. Fancy white clover sells for 15@15½. For amber there is no demand. The market for extracted is fair, and prices rule as follows: Amber, 5¼@5½, by the barrel; in cans it brings a little more; alfalfa, 7½; white clover, 8@8½. Beeswax, 28@30.
C. H. W. Weber,
Feb. 18. 2146 Central Ave., Cincinnati, O.

Denver.—Comb honey has not been much in demand lately, and prices have a downward tendency. No 1 white comb, $3 00@$3 25 per case of 24 sections; No 2, $2 50@$2 75 No 1 white extracted, 7½@8⅓. Beeswax, 22@27, according to color and cleanliness
Colorado Honey-Producers' Ass'n,
Feb. 1. 1440 Market St., Denver, Col.

Chicago.—The market is in very much the same condition as when last quoted. There is still an excess of fair to good comb honey, not too much fancy, but more than an abundance of other grades.
R. A. Burnett & Co.,
Feb. 19. 199 South Water St., Chicago, Ill.

Schenectady.—Our stock of both comb and extracted is greatly reduced, and we have hardly enough to fill orders, especially of fancy white comb and dark extracted We quote No. 1 white clover, 14@15; No 2, 13@14; buckwheat, 12@13. Extracted, light, 7@8; dark, 6½@7.
Chas. McCulloch,
Feb. 20. 523 State St., Schenectady, N. Y.

San Francisco.—Honey market as follows: Comb, per lb., 10@13. Extracted, water white, 7; light amber, 6@6½; dark amber, 5. Beeswax, per lb., 28 cts.
Feb. 14. E. H. Schaeffle, Murphys, Cal.

Kansas City.—The demand for both comb and extracted honey is better, with receipts light. We quote as follows: Extra fancy, per case of 24 sections, $3 40; strictly No. 1, $3.30; No. 1 amber, $3.00@$3.25; No 2 white and amber, $2.50. Extracted white, per lb., 7; amber, 6@6½. Beeswax, 30.
C. C. Clemons & Co.,
Feb. 21. 306 Grand Ave, Kansas City, Mo.

Boston.—Our market on honey continues same as per our last quotations. The supply is fully equal to the demand.
Blake, Scott & Lee,
Feb. 19. 31, 33 Commercial St., Boston, Mass.

New York.—The demand for comb honey is light, and supply sufficient to meet it. Prices continue weak Fancy comb, 14@15; No. 1 comb, 12@13; buckwheat comb, 11@12. Dark extracted in good demand; also considerable movement in other grades Dark is worth 5@5½; light amber, 5½@6½. Beeswax, firm at 30.
Francis H. Leggett & Co.,
Feb. 19. Franklin and Varick Sts., New York.

Philadelphia.—There has been no change in comb honey since our last report. Receipts coming in slowly, and sales accordingly We quote fancy 16@17; No. 1, 15; No. 2, 14 Beeswax in good demand at 31; receipts light. We are producers of honey and do not handle on commission.
Wm. A. Selser,
Feb. 21. 10 Vine St., Philadelphia, Pa.

Buffalo.—The stock of honey in our market is quite light No extracted here, and some call for it. Fancy white comb, 15@16; A No 1, 14@15. No. 1, 13½@14; No. 2, 12½@13; No 3, 12@12½; No. 1 dark, 11@12; No. 2 dark, 10@11. Extracted, white, 7½@8; amber, 7@7½; dark, 6@6½. Beeswax, 28@30.
W C. Townsend,
Feb. 3. 167 Scott St., Buffalo, N. Y.

Wanted.—Fancy comb honey. State what kind you have, how put up, and price per pound.
C. M. Scott & Co.,
1004 E. Washington St., Indianapolis, Ind.

For Sale.—We are sold out on alfalfa honey, but have ten 3 0-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls fancy basswood at 8c: 60-lb. new cans, two in a case. 9c.
E. R. Pahl & Co.,
294, 296 Broadway, Milwaukee, Wis.

For Sale.—One barrel partly full (near 400 lbs.) of extracted honey mixed with honey-dew, but light color; good for feeding or factory purposes Price 5½ cts. per lb.
John A. Thornton, Lima Ill.

For Sale.—White extracted honey from alfalfa in 60-lb. cans, at $4 50 each; light amber honey mixed with Rocky Mountain bee-plant, fine flavor, $4.20 each. Prices on small cans and pails on application
M. P. Rhoads, Box 216, Las Animas, Colo.

Wanted.—Beeswax; highest market price paid. Write for price list.
Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price. kind, and quantity.
R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.
Seavey & Flarsheim,
1318-1324 Union Avenue, Kansas City, Mo.

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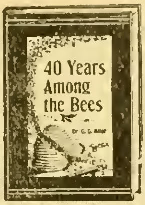

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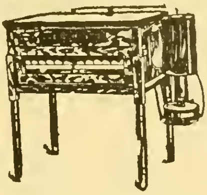

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Gus. Dittmer, - Augusta, Wisconsin.

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Stray Straws

By Dr. C. C. Miller.

Mr. Editor, it's bad enough for you to try to "work" me; but when you sick W. W. Brockunier on me, p. 160, you're going too far.

I think several queens have been reported like that one on p. 133. I have had just one. She kept laying all right, but never an egg hatched. I killed her.

D. I. Wagar, in binding Gleanings, p. 158, gauges the punching by using a previously punched number. He may like better a punched piece of tin as a gauge.

I thought—still think—that we ought to have had a new election for a General Manager. But I believe in submitting to the majority, and the thing now to do is to push forward unitedly together.

Hon. Redfield Proctor, U. S. Senate. Have you written him, urging additional appropriation? See page 136. [It may be too late to write now; but it will do no hurt to send a letter, at all events.—Ed.]

A good idea, that of J. P. Lytle, p. 156, to have a strip on the bottom of the hive to support the bottom-bars of frames with newly transferred combs. If not prevented in some way, heavy transferred combs are sure to make bottom-bars sag.

Studying Utah bulletins has made J. A. Green rather blue about alfalfa—p. 139. A good dose of the Colorado bulletin will cheer you up, Jimmie. [Get a stack of those bulletins and hand them out, Jimmie, to those ranchmen in your neighborhood.—Ed.]

Butterflies swarming on alfala-blossoms and blossoms blasting. Isn't it possible the butterflies lay eggs in the blossoms, and the larvæ get in some lively work? [Very possible. Prof. Cook refers to the same matter in this issue.—Ed.]

Dr. Eastwood suggests fences to get brood-combs built straight, p. 159. Colvin's comb-guides were used for that purpose more than 40 years ago, but were cast aside long ago. [But foundation was not in use at that time. Possibly that would make a difference.—Ed.]

A word to beginners. Whatever else you may believe or not believe, set it down as one fixed article in your creed that the queen is the all-important factor in a colony, and that the time and trouble taken to rear the very best will yield immense returns on the investment.

The answer to I. D. Olver's question, p. 150, is true, but the question might be answered more fully by saying that for extracted honey it works all right to raise three, four, or all the frames of brood above excluder, leaving queen below, and if all are raised he may have no swarming.

C. M. Aarons can not get a laying-worker colony to accept any kind of queen, page 155. Let him try a virgin just out of the cell, or not half a day old. Remember, too, that it is not a single worker that's laying, but a large number are at the miserable business. They probably just quit when a better layer starts in.

C. H. W. Weber I know to be a very solid sort of German, so I put a good bit of faith in his experiment with formalin for foul brood, p. 151. Just as I said in a Straw some time ago, if formalin kills every thing in the comb, then we can save our foul-broody combs. [The experiment of Mr. Weber is certainly interesting. We shall hope to try it if given an opportunity this summer.—Ed.]

"Two bunches of bees are never as good for wintering as the same number in one cluster," page 154. Right. And the one cluster will winter, probably, not quite, but very nearly, as well if a thin board is shoved down through the middle of it. That's just the way it is when two nuclei are properly lodged in one hive. I've many a time seen them in the cellar in winter clustered just like a single cluster with the division-board between them.

J. T. Hairston is quite right, p. 151, in saying that whiter sections would be secured over new than over old combs. Jesse Oatman once told me that he seriously thought of melting up all his old combs and having new built for the sake of whiter sections. The bees carry bits of the old combs to help cap the sections. But they don't carry them any great distance, and thick top-bars make the distance so great from the combs to the sections that it's nearly or quite as good as having new combs.

I'm afraid, Mr. Editor, that you concede too much to G. H. Place's plan of increase, p. 159, when you say he can make increase that way, especially as he wants to increase "to the extreme limit of ability." With a hive 24 inches deep, and combs built only three-fourths down, there is very little probability that the queen will go up and lay in a story placed over. [You have read more into what I said than what I intended, for you hitch on to what I wrote a statement of Mr. Place. I said he *could* make increase on that plan, and so he could, *after* the combs were built down. But I went on to say that there was a *better* way.—Ed.]

The advice of the editor to the inexperienced, p. 145, to rear queens during swarming time, is equally good advice for the experienced bee-keeper who rears only for his own use. Only the man who rears queens for sale, and so can not rear a sufficient number during swarming time, needs to take the extra trouble to rear them at other times. For the up-to-date bee-keeper, however, it's not the best thing to trust to swarming-cells Take your colony with best queen, build it up *very strong* by adding brood from other colonies, then unqueen it, and you'll have a lot of cells as good as swarming-cells, and *all* from best stock.

Another suggestion as to that fertilizing tent, p. 132. Let the entrance of the nucleus having the virgin queen be half in the tent and half out, the outside part having excluder zinc, and the part opening into the tent being closed at all times only when desired to have the young queen fly. Then when the queen would try to get out through the excluder she would not fail to get over the edge of it into the tent. [Yes ; but why shouldn't the workers get into the habit of getting into the tent as well as through the perforated metal? If the workers mingle with drones inside of the tent, they cause confusion. We are told that the success of the plan depends on keeping the workers out.—Ed.]

R. Rhomberg, in an able article in *Bienen-Vater*, reports investigations as to ventilation. He put a straw mat over a hive, filled the hive with smoke, then watched the smoke escaping upward. It came through the needle-holes, the wrinkles in the binding, and especially along the crack where the cushion lay on the hive, but never a bit came through the straw. That the straw is impermeable is further shown by the fact that it becomes damp. If air passed through it, then the moisture would pass through and settle on the outer surface, leaving the mat dry. If he is right, and I suspect he is, then we are a bit off in thinking that cushions are good because the air passes through them. They are good because they are non-conductors, keeping warm. The air must be allowed to escape through little holes or cracks, and the under surface may be water-tight, only so it is warm. [There is something in this, I believe. Absorbents will take up water; but if they would allow air to pass through them, that water would be evaporated, but it is not. The common practice now is to put a sealed cover over the brood-frames in winter, and then the so-called absorbents on top, not to "absorb," but to provide a non-conductor of heat.—Ed.]

W. Matthes (*Deutsche Bienen-Freund*) claims that a bee, for all its thousands of eyes, doesn't see as well as a man. Likely he's right. Although they work in the dark, they can do that by the sense of feeling. But they can't get around outdoors without a lot more light than is absolutely necessary for a man. Bees don't sting as much in a house-apiary, because they can't see so well. In the evening, when it is still light enough for you to see quite distinctly, throw a bee in the air and it will never find its hive. When a cloud comes up on a bright day, the bees hustle home for fear it will get too dark for them. [That is true. Bees do not seem to see clearly. To get rid of a lot of bees when I had suddenly brought on an onslaught, I on one occasion dodged behind a post, dropping down low. The bees bumped into the top of the inanimate thing just as if they thought they had got their man; but as soon as they struck they flew off, concluding they had made a mistake. In the same way a lot of bees will follow one up to an open door; but just the minute he steps inside, they will stop and hover around, for apparently it is blank darkness to them. It is probable that all the operations in the hive are performed more by feeling and smelling than by sight.—Ed.]

A. I. Root's report shows Cuba ahead of this region as to some phases of the drinking business. Now I'd like to know whether *treating* is as common there as it is here. Take away screens, and stop treating, and you will cripple the saloon business no little. [Right you are. We are forced to get rid of the saloon by degrees, and as soon as public sentiment will back up the law. One of the first laws we ought to have is one that will prevent screens in front of any place of business except, perchance, legitimate restaurants, banking-houses, and other businesses of that character. Why does the American saloon have a screen in front of it? Simply because it would not do to have its acts behind subject to public gaze. "They love darkness rather than light, because their deeds are evil." Why shouldn't our groceries, our drugstores, our bakeries, and our meat-shops have screens in front of them? As to treating, a penniless old drunk once told me that, without a cent of money, he could get all the liquor he wanted at any time. All he had to do was to hang around with the crowd and take his drink when some one else who had money was disposed to "set 'em up." Four or five fellows walk into a saloon at the invitation of one of them. One treats. No. 2 concludes he had better treat; and so on, every man, if he has any money, "sets 'em up," and all the hangers-on, without money and without price, drink to his health (?). By the time each has had five drinks, when the natural appetite would crave but one, they are pretty "bummy." The treating habit is not seen in any but the American saloon. Yes, let us pull down the screens and also stop this treating. Let us knock out one prop after another until the whole miserable business totters.—ED.]

Pickings from Our Neighbors' Fields

By "Stenog."

An error occurs on p. 160 of our previous issue. In speaking of sulphur as a cure for paralysis, Mr. Pierce meant to say, "I then gave them another good dose, larvæ, eggs, bees, and all, and in about two weeks the *disease* had entirely disappeared." As printed, it said the *bees* had disappeared.

* * *

I have been asked several times to make out a list of the principal German and French bee journals, with their addresses. For the benefit of our German readers, and perhaps others, I here give the names of all that come to our office. It would be well to remark that German bee journals represent, as a general thing, some particular section or organization, the journal being published for the special benefit of such, just as trade journals are here. In this country each journal stands on its own merits, and tries to teach the best methods for the entire United States.

Deutsche Imker aus Bohmen (Bohemian Bee-keeper) is a fine journal in every respect. It has about 32 pages besides a large amout of advertising. It is published in Prague (Prag), Bohemia. It is edited by Hans Bassler.

Bienenwirthschaftliches Centralblatt is published in Hannover, Prussia, Georgstrasse 32 (32 George Street). It is 38 years old, and quite progressive.

Leipziger Bienen-Zeitung. This, as its name indicates, is published in Leipzig, Germany. I suspect more Germans would be interested in this journal than any other one printed in Germany. The issue for February has 16 pages of reading-matter and 24 of advertising, and is, in this respect, the best-patronized bee journal I have seen. Much attention is paid to questions and answers, and to gleanings from other journals. The price is 40 cents for Americans.

Bienenzucht (Bee Culture) is edited by F. Gerstung, Ossmannstedt, Thuringia, Prussia. It has 16 pages, and is beautifully printed.

Illustrierte Monatsblaetter fuer Bienenzucht. This is edited and published by one of the most prominent bee-writers in Europe, Mr. Thodore Weippl. The address is Klosternenburg, near Vienna, Austria. It has 20 pages, beautifully illustrated. Most German bee journals are almost entirely destitute of pictures. The number under consideration has a view of the field seen in a microscope, four inches in diameter, showing plainly the germs of foul brood. The article accompanying is designed to show the identity of *Bacillus alvei* (the germs of foul brood) and *Bacillus mesentericus*, often found on potato-peelings. There seems to be increasing doubt, I believe, as to the identity of these scourges.

The French journals will be mentioned in the next issue.

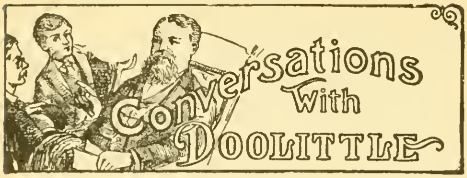
* * *

El Colmenero Espanol is one of the best foreign journals that reach us. It is made up largely of that which is of interest in most other foreign journals. Here is something relative to the introduction of queens, which I never saw yet, and may be worth trial. I translate it from the Spanish:

"When I introduce a new queen to a colony I take away the old mother and give to the bees a new queen inclosed in a cage. The next day I go back and take the cage out and submerge it for an instant in cold water, and, without waiting, let the queen run loose among the bees.

"Queenless colonies, those having too many drones, or which have laying workers, are treated in this way. Since doing this I have not lost a queen, and have not injured one, either native or foreign.

"I think it well to add a few observations, based on my experience, as to the reason for the favorable reception of the queen that has been submerged in that sort of bath. When the queen finds herself so wet in the hive she remains motionless on the comb, numbed by the cold water. It is admitted that a queen which remains quiet inside of a hive is not so readily attacked by the bees as one that runs around in an agitated manner here and there. The bees get near her and suck off the water covering her, without molesting her in any manner. It is needless to say that, after having dried her, they will not kill her. Perhaps, on account of her bath, she loses her distinctive odor."



WHEN DO QUEENS, GOING WITH AFTER-SWARMS, MATE? ETC.

"A neighbor and myself have been having a dispute over the mating of queens, and we have agreed to leave the matter to you to decide. Will you do this, Mr. Doolittle?"

"That will depend somewhat upon the matter for decision. If the matter comes within my experience, I can tell you what my experience has been."

"The matter is of considerable importance to me, as I wish to clip all queens as soon as mated, but I wish to be sure that they have mated, for it would spoil them to be clipped before they are mated, would it not?"

"Certainly. And it is always well not to clip any queen until she has commenced to lay; for often they are seen to return with every evidence of having successfully mated, only to go out again before they commence laying. But what is the thing that you and your neighbor are disagreeing upon?"

"My neighbor claims that almost all young queens are mated previous to the time they go out with after-swarms, and that, if I can see these queens when running in with the swarm, at time of hiving, as I very often do, then is the time to clip them, and thus save looking them up later on."

"Well, what is your claim?"

"I claim that very few, if any, queens are mated before the after-swarm leaves the hive. We both agreed to abide by your decision, so you need not be afraid to say what you think, for each of us will take it kindly, no matter which is wrong."

"I mistrust that your neighbor has kept very few bees, or else has inclined his ear to some of the 'knowing ones;' for if any bee-keeper of any prominence ever put forth the claim that any queen leading out any after-swarm had mated or become fertile, before she so led out the swarm, it is something that I have failed to note; and such claim would show that the maker of it could not have looked into the matter very thoroughly. I have made swarming and queen-rearing a study for the past 25 years, spending days, weeks, and months upon it; and if any queen was ever fertilized, or even flew out to meet the drone while there were other young queens in the cells, it is something I have never noticed, and something that all of my experiments go to prove never happens."

"Can you tell us why it should not so happen?"

"All know that after-swarming comes only from a plurality of queens in the hive, and these queens are always those which have never been out of the hive at all, except as they may have gone out with an after-swarm, and been returned by the apiarist."

"Do I understand you to say that there is a lot of queens running about among the bees, at time of swarming?"

"No, not that. As a rule, during after-swarming all young queens which would naturally emerge from the cells, except the first one out, are kept in the cells by a guard of bees which feed them through a hole or small opening in the cell, made by the young queen trying to bite the cover off; and these queens are constantly quawking because they are kept prisoners after they are fully mature, and would naturally emerge; and the one which has her liberty is piping back in her enraged condition—enraged because the bees keep her from destroying these quawking inmates of the cells. You have heard this controversy among queens going on in the hive at after-swarming time, have you not?"

"Yes. But I did not know that this would have any effect on the mating of queens."

"While such a state of things as this is kept up in the hive, no queen has any desire to mate. Her only ambition now is to kill these sisters of hers which are asserting their rivalry so vigorously, and no after-swarming is ever conducted except under just such a state of affairs. I think you can now see where the mating of a queen would be effected by such conditions."

"Yes, I do. But do you think that there never was a case where the young queen was fertilized before an after-swarm was hived?"

"I should not wish to say just that, for I had one case where an after-swarm had been kept back for several days by unfavorable weather, and where only one queen went with the after-swarm, in which I had every reason to believe that said queen was fertilized while she was out with the swarm, or that she went from the swarm while it was clustered on the limb, as I saw this queen entering the hive with the other bees, with the drone organs attached to her, and she commenced to lay two days afterward."

"Would you consider this as an exception?"

"I certainly should, for this is the only case I remember in all my experience. I believe the rule to be that all queens accompanying an after-swarm wait about their wedding-trip until they are established in their new home, which is not, in the case of a plurality, until all the queens are killed but one. When they are thus established, then in from one to four days after hiving, on some pleasant afternoon, and quite often when the bees come out for a playspell, the queen will be seen to leave the hive, and usually will come back sucessfully mated. Thus you will see that my experience goes to prove that you were right and your neighbor wrong."

"Yes; and that if I had heeded him I should have ruined every queen whose wing I clipped when I saw her running in with the swarm. But don't you clip any queens when you see they have wings while they are running in the hive?"

"Where I know for certain that a swarm has a laying queen, I would catch her when seen with the swarm, and clip her; but all clipping should be done before the prime swarm issues, for otherwise the swarm may take a notion to go to the woods before I have a chance to hive them. Therefore I always make sure that all queens are clipped before any prime swarm issues; and thus there is no uncertainty about the matter."

"When do you consider the best time to clip?"

"At time of fruit-bloom in the spring."

"Why?"

"Because, at this time the bees are generally very much engaged in the field, so there are few old ones in the hive and in the way. And as few young bees have yet emerged from their cells, there are comparatively few young bees in the hive. This, with the queen being extremely prolific just at this time (under the influence of the first new honey coming in), which prolificness enlarges her abdomen to the maximum size, makes it so that she is easily seen among the few bees, while she is so clumsy under her burden of eggs that she is not inclined to run and hide, as she often will later on. These things combined make it decidedly the best possible time to make sure that each queen is clipped."

"Well, I must be going. I thank you for this interview."

"You are welcome. And when you have more questions you wish to ask and know about, call again."

Editorial
By E.R. Root.

Mr. James Heddon, of Dowagiac, Mich., desires to have it announced that the patent on his divisible-brood-chamber hive has expired, and that the same is free to the public.

RAMBLER'S HUMOR.

In the February issue of the *Bee-keepers' Review* the editor very exactly describes the humor that was characteristic of the Rambler's writings. He says:

> He was decidedly the humorist of our ranks. His humor was not the wooden, made-to-order, try-to-be-funny on-purpose kind, that kind that makes a man shudder, shut his teeth together hard and think thoughts that must not be spoken. Rambler's humor was spontaneous. It bubbled up like a clear spring that goes laughing and sparkling down the mountainside. His humor was like that of Josh Billings. It was philosophy expressed in a humorous way. A sad but strange feature, considering the humorous style in which he wrote, was that deep down in his heart was a great sorrow. He was not given to talking of this, but he once wrote me that, when the wife of his youth died, the light of his life went out. No man has done more to brighten and lighten the pages of GLEANINGS than has Rambler.

ILLNESS OF THOMAS G. NEWMAN.

Mr. T. G. Newman, formerly editor of the *American Bee Journal*, and General Manager of the National Bee-keepers' Union for a number of years, during which time valuable precedents in law were secured, while going to the postoffice in San Francisco suddenly lost consciousness and fell to the pavement. He was carried to a drugstore, and regained consciousness sufficient to give some information concerning himself. "He is now in a critical condition, and complete rest is the surest and almost the only means of assuring his restoration, even to where he may take up the work he has been compelled to drop." He is, at present, editor, treasurer, and general manager of the *Philosophical Journal*, of San Francisco. Mr. Newman has had a very active career, and the hard work he has been doing these many years is now beginning to tell on his not overly strong constitution. He has our sincerest sympathy.

DOES HE INTEND TO PAY FOR THE QUEENS?

Mr. S. L. Watkins, of Grizzly Flats, Cal., has been getting queens of several breeders, and, so far as we know, he has not paid for them. In 1901 he ordered of Mr. W. H. Laws, of Beeville, Texas, six queens. These were sent; but he wrote back five were dead; and Mr. Laws, desiring to be generous, sent six more. Mr. Watkins also ordered queens of W. A. H. Gilstrap, of Grayson, Cal.; but up till very lately he had settled with neither party, although the accounts are nearly two years old. We have understood he has ordered queens of other people in the same way, for which he has rendered no equivalent. He makes fairly good promises to pay in a given time, but for some reason fails to make them good. We have written him twice, and he wrote back some months ago apparently fair letters, telling of his misfortunes; but, so far as we can ascertain, he has not paid any of these parties a copper, and now they do not hear from him. Whether the man is unfortunate, and can not meet his honest obligations, or whether he intends to get something for nothing, we are not prepared to say.

THE GENERAL SUBJECT-MATTER OF GLEANINGS IN BEE CULTURE.

In response to the request to our subscribers to state what sort of matter they desired to have published each fortnight, we are now getting a large number of replies. A few of these are given below. But while there may be a thousand who wish to have the department of questions and answers more full and strong, and there may be several thousand who prefer to have more of the advanced or technical articles, we should like to get a full and complete expression, so we may be able to follow out the wishes of a majority of our readers. Say, also, whether you like illustrated matter, especially that which shows new kinks and new methods for doing work among the bees.

I like the questions and answers the best.
Earlville, Ill. J. C. Frank.

I find questions and answers a great help to me, rather more interesting than "forced, shook, or shaken swarms." R. W Polley.
North Chelmsford, Mass.

My opinion is that the last number is the most interesting and instructive I have yet seen, and my subscription has covered two years. W. S. Carson.
Chicago, Ill., Feb. 23.

Your Questions and Answers department is all right. We older ones are not too old to learn, and you know we find lots of good hints among your answers. Keep on doing so. G. C. Greiner.
La Salle, N. Y., Feb. 23.

Let me congratulate you on the splendid issue for Feb. 15. Give us more questions and answers. Nothing so nearly approaches a practical demonstration of the workings of an apiary. J. M. Reed.
Big Valley, Texas.

Yes, by all means keep up the questions and answers. I am and have been for many years a close reader of scientific and technical papers, and the part that I like most in them all is the questions and answers H. D. Dibble,
Rochford, South Dakota, Feb. 23.

My preference is decidedly in favor of the questions and answers, as given in the issue mentioned. The articles from the expert bee keepers are excellent, and we couldn't get along without them; but the question department brings out the little practical points that help us at just the point where we need them. A. J. Kilgore.
Bowling Green, O., Feb. 23.

Speaking from the standpoint of a very green hand, I would say continue the questions and answers by all means. It will tend to keep such as I from making some very foolish moves, and help us to understand the problems which were learned so long ago by the masters that they have forgotten that it wasn't born in them. H. E. Sanders.
Chrisman, Ind., Feb. 19.

On page 135 you struck the key-note when you imagined that questions and answers was the "stuff." At any rate that is what I pick out and read first. I am with the little bees, the same as you are with the automobile; don't know the cause and effect, but get other people's experience and profit, thereby saving time, money, and vexation, let alone failure.
Albia, Iowa. J. I. Chenoweth.

Bro. Root:—Your last number of Gleanings, Feb. 15, is about the best I have yet read. It is chuckful of practical information I always like your editorial notes at the end of each article. But I can't say that I like one department better than any other. They are all interesting

I use the Danz hive, and I, too, think that making the bottom-bar of the brood-frames as wide as the top-bars would be an improvement, even if it has the one disadvantage you mention. Chas. B. Achard.

The letter of Mr. Sanders, above, touches on a point that I have found was sadly lacking in the text-books and journals treating on automobiles. They would talk about four-cycle engines, carburetters, spark-plugs, make-and-break coils, planetary transmission, etc., assuming that we novices knew all about them as a matter of course; and it was only after a talk with a practical automobilist that I learned the meaning of those terms; and he even seemed surprised to think that I should be such an ignoramus. Now, I wonder if bee-journals have fallen into the fashion of *assuming* that their beginner class know all about the technical terms that are used so freely in their columns. Let's see. How many know what "post-constructed" and "pre-constructed cells" means? when we talk about "grafting," what idea is conveyed? and just imagine the perplexity of a novice when he finds in his bee paper a good deal about "shook swarms." After a little he falls to wondering whether "forced swarming" has any thing to do with the first-named term. Soon he sees the veterans talking about "prime swarms," and that even they disagree as to what is the meaning of the term. Then some one else has something to say about half-depth brood-frames, and he wonders what is a standard depth. He may read the bee journals for years and scan many of the supply catalogs, and never see the size of a Langstroth frame given. No wonder he is at sea.

But Gleanings does not propose to give up its entire space, by any means, to beginners. It wishes to make itself useful to the veteran as well as to the novice. But what it now wishes to know is, what shall be the *proportion* of technical or advanced bee-lore to that which is somewhat more elementary in character.

MR. HEDDON ON A NATIONAL COMMERCIAL ORGANIZATION.

Mr. Hutchinson, the editor of the *Review*, recently visited Mr. Heddon, one of the bright, brainy bee-keepers better known to some of our readers of some years ago than those of the present day. In the interview that followed, the subject of national co-operation of bee-keepers for the purpose of marketing honey came up. Mr. Hutchinson quotes Mr. Heddon as follows:

> I went over the different plans that have been proposed for national commercial organization. He thought the matter over for a while, then said: "Hutch, I don't believe you'll make it work. The country is too large, there are too many bee-keepers, and they are too scattered. They are lacking, many of them, in business abilities. Ordinary bee-keepers have not had the business training that comes to the heads of manufacturing concerns that go into a trust. Any business concern that goes into combination with other like concerns is ready at all times to 'eat crow.' If a whole loaf can not be secured, half a loaf is accepted. Let come what may, they all hang together. They keep up the combination. Bee keepers won't do this. The moment that a man's honey isn't graded as he thinks it ought to be graded, the moment he does not get the returns to which he thinks he is entitled, out he goes "
>
> I cited him the Colorado Honey producers' Association. "Yes," he said, "the bee-keepers of a certain State or locality may band together, if there is any reason why they should, and make a success of it. California may form an association and make a success; so may Colorado; so may Canada; or New York; but when you attempt to combine all the bee-keepers of this country into one society, or have a central organization controlling the different local organizations, you are courting failure. There is always something

> going into the central organization, but nothing coming back."
>
> I then asked him if the National Association might not aid in the way of gathering statistics, regarding both the crop and the markets. He thought it might possibly do this, but considered this to be a work that might better be carried on by the bee journals
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> The *Review* wishes to be entirely fair, to give both sides of the subject, and if it is really advisable to drop this idea of first starting a national central organization, working up, instead, local organizations, like that of Colorado, then the sooner we know this the better. The *Review* is not yet ready to offer advice upon this subject

I do not like to throw any cold water on a laudable enterprise of this kind; but it seems to me Mr. Heddon hit the nail square on the head when he says we can combine bee-keepers in a small area, or corporations over a large area. But our own experience in selling honey is that a large number of bee-keepers are not also business men. Sometimes they will agree to market their honey through certain avenues. After having made that agreement, verbally or otherwise, another offer comes which they consider better, and they will take up with that offer. I do not mean to imply that bee-keepers are a dishonest class, by a long way; but when a few break out of the ranks, those few are able to smash prices, thus demoralizing the market. An effective organization, national in character, should be so complete and perfect in its workings that *not a single buyer* can get any honey except through the accredited organization through which bee-keepers are supposed to market.

Taking every thing into consideration, it seems as if the attempt to organize a national commercial organization for the purpose of marketing honey is a little premature just now. Let us bend our energies toward making strong State organizations, such, for example, as the one in Colorado. And, by the way, it goes without saying, that any good organization should have a good manager. Mr. Frank Rauchfuss, the manager of the Colorado organization, is a good business man. He has shown his fitness and ability to hold together the bee-keepers; and so far his association has been a grand success. When we get half a dozen or a dozen strong State honey-producers' organizations, then it will be time to talk about affiliating these into a large body which will control and handle the output of the several smaller ones.

GENERAL MANAGER N. E. FRANCE.

MR. N. E. FRANCE, of Platteville, Wis., has duly qualified for the position of General Manager, as provided by the constitution. His bond has been approved by the Directors, and Mr. Secor, the retiring officer, has turned over to him $921.60, the records, index-cards, printed leaflets, and other properties of the Association. Mr. France has actively assumed the duties of his office, for already he has begun on his legislative work. A spraying-bill, without any restrictions whatever, is now before the Legislative Committee of New Mexico, and Mr. France and others have been pouring in doses of information showing how spraying should be limited to before and after blooming time. He has written numerous letters to Nevada, Colorado, Nebraska, Michigan, and New York. He is a very busy man if we may judge from the work he is doing.

"FORTY YEARS AMONG THE BEES."

"FORTY YEARS AMONG THE BEES" is the title of a new and interesting book by Dr. C. C. Miller, just off the press. It is published by G. W. York & Co., of Chicago. Price, postpaid, $1.00. I have not yet had an opportunity to review the book, but it carries with it all the interest of a good novel, and, to say the least, it is decidedly interesting. The first few pages are devoted to a sketch of the author's early life, how he went through college, working his way through, living on 35 cents a week, and finally graduating $100 to the good, or $50 more in his pocket than when he started in his college career. There, I can not say any thing more about the book just now. The boss printer says the space is all taken up; but I will tell you more about this interesting book in our next issue, for it is full of good things.

GENERAL
CORRESPONDENCE.

THE CARE OF HONEY.

Results of Experiments Conducted with Uncapped, Partially Capped, and Capped Honey, or with Samples of Honey Having Different Specific Gravities.

BY R. F. HOLTERMANN.

There is no product of the soil which does not require care and proper handling in storage. Some, perhaps, require greater experience than others—among them being cheese, butter, and honey. For many years it has been my claim that it was a mistaken policy for the average bee-keeper in an average locality to expect to ripen honey by exposure to the atmosphere in tanks. Some four or five years ago I interviewed the Department of Inland Revenue as to testing the purity of samples of Canadian honey upon the market, and also sought, if possible, to have investigations carried on which would lead the department to pass legislation making it an offense to put upon the market honey unripe and of low specific gravity. Experiments with uncapped, partially capped, and capped honey, and honey stored in a damp atmosphere, was at the same time suggested to the authorities at the Dominion Experiment Farm, Ottawa, Canada.

Prof. Shutt, Chemist at the Experiment Farm, undertook the work of finding the percentage of water in the above samples. That Prof. Shutt is a deep and original thinker, as well as a skillful chemist, we will readily admit from the following facts: He found that in driving off water by heating in a tube, not only was the honey given off, but a portion of the saccharine matter. The levulose decomposed very readily, caramelization taking place, and that the loss in the weight of honey could not be entirely attributed to the driving-off of water. decomposition of the saccharine matter taking place. I may, in passing, say that, when honey is being scorched, which we know it so readily can be, this process is taking place. By one sweep, as it were, Prof. Shutt found that all the past tests were inaccurate as to the percentage of water in honey. Not discouraged, Prof. Shutt set about to find out some way of doing this to prevent caramelization. At the annual meeting of the Ontario Bee-keepers' Association, held last week in Barrie, the above gentleman announced that he had succeeded in finding a way of doing this by means of a prolonged lower temperature. It appears to me that by this method we have a key to the method of liquefying granulated honey without the least possible injury to flavor.

THIN HONEY.

From the tables which I give herewith it will be seen that my claim as to the best method of handling extracted honey is correct. This season we extracted while warm, strained the honey into and through a filling-can with a gate, and from that gate allowed the honey to run directly into barrels which were closed at the bung as soon as filled. My claim was that, in our atmosphere, honey would not throw off moisture, but rather attract it; and, more, that the aroma which new clover and thistle, as well as other honey, have when freshly extracted, would be best retained by sealing it as soon as possible after extracting. Unfortunately, in the experiments, the average degree of humidity was not taken; however, Prof. Shutt stated that the atmosphere at Ottawa was very dry—much more so than at Toronto, and that the cellar in which the honey was stored was also dry.

WATER IN HONEY, 1901.—TABLE NO. I.

Comb	Where Kept	Bottle Closed with	Extracted.	Analysis	Water, per cent.
Capped	Bee - house	G S.	Aug. 8	Oct. 1	15.46
"	Cellar	G. S.	"	"	15.89
"	Bee - house	C C.	"	"	16.95
"	Cellar	C. C.	"	"	15.84
Partly C'pd	Bee - house	G. S.	July 1	"	19.12
"	Cellar	G. S.	"	"	20.68
"	Bee - house	C. C.	"	"	20.63
"	Cellar	C. C.	"	"	21.03
Uncapped	Bee - house	G. S.	"	"	19.57
"	Cellar	G S.	"	"	19.24
"	Bee - house	C. C.	"	"	18.25
"	Cellar	C. C.	"	"	22.09

In the table, G. S. means glass stopper; C. C. means cheese-cloth was placed over the mouth of the bottle.

WATER IN HONEY, 1902.—TABLE NO. II.

Comb	Where Kept	Bottle Closed with	Extracted.	Analysis	Water, per cent.
Capped	Laboratory	G. S.	Aug. 1	Nov. 6	15.78
"	Bee - house	G. S.	"	" 11	15.88
"	Laboratory	C. C.	"	" 6	17.35
"	Bee - house	C. C.	"	" 11	16.25
Partly C'pd	Laboratory	G. S.	July 7	" 6	16.58
"	Bee - house	G. S.	"	" 11	15.33
"	Laboratory	C. C.	"	" 8	15.31
"	Bee house	C. C	"	" 11	15.90
Uncapped	Laboratory	G. S.	"	" 8	17.13
"	Bee - house	G. S.	"	" 11	16.33
"	Laboratory	C. C.	"	" 8	17.56
"	Bee - house	C. C.	"	" 11	18.18

(See A. table No. 3).

Other investigations showed that, in some instances, the amount of water by exposure to a moist atmosphere was more than doubled; the flavor, as we might expect, was also much inferior in the exposed honey. While we may except very dry atmospheres, such as we find just this side of the Rockies, the reports go to show that honey can not be ripened by exposure to ordinary atmosphere in summer; and I know that in Canada, at least, we could get an increased market for honey if all would allow honey to be well ripened before extracting, and then give it proper care until it reaches the consumers' hands.

STORAGE OF HONEY IN (*a*) MOIST AND (*b*) DRY ATMOSPHERE.—TABLE NO. III.

November and December, 1902	Original Moisture in Honey	Gain or Loss during Experiment	Moisture in the Honey at End Experiment
A—kept in saturated atmosphere during 1 month	15.88 per ct.	15.58 per ct.	31.46 per ct.
B—kept in a cupboard during 1 month - laboratory atmosph're	15.88 per ct.	-1.64 per ct.	14.24 per ct.
D—kept in saturated atmosphere during 20 days	15.88 per ct.	32.35 per ct.	48.23 per ct.
E—kept in a cupboard during 20 days — laboratory atmosph're	15.88 per ct.	-2.04 per ct.	13.84 per ct.

Tables No. 1 and 2 show that, with almost no variation, the uncapped honey has the greater per cent of water. It is this inferior honey which is doing so much in damaging the market for honey. Not only has this honey not the aroma and flavor of the ripe honey, but if kept in stock by a dealer or the consumer in a temperature high enough to cause fermentation, it ferments. Unfortunately the inexperienced party does not know "what struck him," the work which I am doing at farmers' institute meetings. I have just returned from a long trip of that nature, to tell bee-keepers how to produce and keep a good article, and tell the dealer and consumer how to judge it. Until we as bee-keepers realize the *deeply important* nature of this question we shall not have and hold the largest available home and foreign market. GLEANINGS, as the leading American if not world's bee journal, can become a powerful factor in the question. At present we are too much like the cheese and butter men when there was no system in producing these foods, and the best methods of storing after production unknown.

Brantford, Canada.

[This is a question that hinges largely on locality. In Medina, honey left exposed in an open dish will evaporate till it becomes almost as thick as transparent wax; and most delicious is it when it is of this consistency. We are about 30 miles south of Lake Erie, and you are about 25 north of it; and I am at a loss to know why honey in your locality should be stoppered at once when it would not be necessary with us.

I have always supposed the locality around Medina was about as humid as any place in the United States. I have seen some government statement to the effect that the region near the great lakes, especially Lake Erie, was more subject to rainfall and general dampness than anywhere else in the United States outside of Oregon; and yet, almost without exception, our honey becomes thicker on exposure to the air. Only rarely have I seen times when it would apparently absorb moisture.

I have looked the table over very carefully, and I do not see that they bear out your position very strongly. Table No. 1 relates to honey stored in a *cellar*. If this is like ordinary underground rooms, I should *expect* there would be some absorption of water as a matter of course; but still the figures show only a very slight increase. Even in table No. 2, where the honey was tested above ground, the difference is not very marked. In one case the unstoppered honey became *thicker*. In table No. 3 the result is no more than we should expect in a "moist atmosphere." In most localities extracted honey is improved by exposure to the air. For the *average* locality, in the summer time at least, I believe it would be positively harmful to recommend sealing the honey, even in that portion of the country known as the rain-belt. Your locality, possibly and probably, is an exception. —ED.]

PAPER HONEY-PACKAGES.

How the Bologna-Sausage Package is Stuffed and Marketed.

BY R. C. AIKIN.

Mr. Editor:—I am one of those necessary evils known as cranks. It is the crank that gets motion. If it were not for the crank stirring up things it is very little progress we would ever see, for somehow so many people are satisfied with just drifting with the current as a helpless bark. It seems to be the rule that those who do the most for the world are the ones that get the least out of it except in hatred and abuse; but when dead and gone, the world rises up and calls these same cranks blessed. Being one of the cranks I do not expect more than is customary with such; but if you will give attention for a little time I will tell you some more about that paper-bag scheme that has been dubbed by some the "bologna sausage." I know that, in due time, it will prove a blessing to very many. It is better to be a Paul than a Judas

I need not go over the ground in detail again that I have so often discussed, showing that the returns coming to the producer out of his product are all out of proportion —that is patent, and known to all thinking men. Under average circumstances The Root Co., and other buyers, would pay me about 6 cents for my extracted honey at their place of business; and when freights and packages are out, that leaves less than 4 cents to the producer. The middle man usually wants well nigh that much for profit; and he may buy and sell, turning his money several times in a year, while the producer turns his but once, and has his taxes and such out of it at that. I do not need to enter into a lengthy discussion of that question; we are already too familiar with the subject. It is how to forget that problem we want to know. Well, I am going to tell how I have been forgetting, just the way I went about it, and the success attained. I want to detail all I know about it, so as to make it plain that others may take the short cut to the goal. I have always found that comb honey is a luxury — that is, it was not regularly used, and was much influenced in price and demand by general trade conditions; and it is also so perishable and subject to injury that it can scarcely be sold except at a loss after it is a year old. I have found, too, that extracted honey in glass practically amounts to the same thing, especially when it is inclined to candy freely, as does all honey in this part of the country. Reliquefying and re-freshening a product after it gets a little old is one of the many things that eat up all profits.

So, Mr. Editor, I began to hunt for some very simple and cheap package that would carry extracted honey to the consumer with the least possible expense. I thought of very thin tin, of wooden boxes, of fiber packages, and probably a number of others. I found at the factory a fiber package that was not very expensive, but it was constructed with straight sides, and would not nest; that is, packages of a given size would not slip into each other; and while the weight was but a trifle when packed for shipment, yet they were very bulky, and took a high rate of freight—the charges on the empty package being almost equal to the first cost at factory. At last I decided to try a simple paper bag, and so got a few of the common grocers' bags, such as are used to put up sugar, rice, dried fruits, and such, and filled them. These bags were, however, not made to hold liquids, and there was no certainty that they would not leak, though there was not much difficulty that way. That class of bags was altogether too limber, and when filled they would not stand alone, and each one must be placed in a form or some kind of support to hold until the honey would become hard. I planned, however, to have forms made in which to put each bag separate, so that, when the honey was solid, the whole lot would be alike, and pack like so many rolls of butter.

But I realized that it would be best to have a special bag made of heavy paper; also that probably it would be best to have the bottom square—the ordinary bag has a rectangular bottom, longer than wide. I wrote The Root Co., or perhaps the editor, and they sent me a few bags such as they used in their business, and recommended me to correspond with Mr. Robert Gair, of Brooklyn, N. Y., in regard to making bags. I went on with my experiments, and figured out the sizes to hold a given amount, made a few samples, and filled one or more to be sure that my estimates were correct. While this experimenting was going on I discovered that a bag that had a square bottom, would, when filled, without any form or mold, assume the round shape; and if of fairly heavy paper they would stand alone too. Thus I continued with the problem, working out the details until I finally decided upon four sizes and their dimensions, endeavoring to have them so as to pack in cases of regular sizes, hoping to have cases that would hold, say, half a dozen of one size and a dozen of a smaller, and probably a dozen and a half of another size. The object was to have the cases as simple as possible, and not have to have a great variety of shape and sizes; but I arrived at no very satisfactory conclusion in results on that point.

Let me digress right here a little from the main subject, to explain a little about the shipping package. According to the railroad classification rules, there is nothing to cover the new package, but it says, "Not otherwise specified, first class." Honey in barrels, casks, kegs, and cans boxed, takes fourth class. So you see the new package, if shipped in boxes, would have to take first-class rating, same as comb honey. But you see if it were packed in kegs or barrels it would take fourth class, and for the present that is the package.

I sent a box of the bags of honey to Denver, and had the matter placed before the classification committee, hoping to get a classification, pointing out that the package was one of the very safest to stand knocking about; that nothing short of fire or smashing all to pieces could materially damage the goods; leakage was out of the question. But I had my trouble for nothing, I was simply referred to the rule that honey-packages not otherwise specified should take first-class rate. That being the situation, the only thing to do until we can get a fair classification is to pack in barrels or kegs, which, while no doubt not in full accord with the intent of the rule, is according to the letter of the law, in that it is in "*kegs or barrels.*" No doubt the intent was to cover liquid honey in these packages; but we can use nail-kegs, lime, salt, and such barrels, and for safety in transit it is much less likely to damage or loss than the tight barrels with liquid goods which the rule was intended for. Nevertheless, it is still advisable to have the classification so it will cover packages of candied honey in boxes, or any proper package that is convenient for the producer to ship in, but we probably can not accomplish this until there is more of a demand along this line, and some pressure.

The sizes I have decided upon as desirable are 2, 3½, 5, and 10 lbs. For the retail trade from stores, the smaller package will take the lead. As compared with other small packages, the paper bag is so much cheaper that it ceases to be much of an item. I never did use much glass, but have used large quantities of tin, principally lard-pails. I used the regular lard-pail because it was *regular*, and, being a staple stock article, was more easily obtainable, and there was a freight classification that enabled me to get them in at rates that would not apply on other kinds.

The tin cost me, on 4 to 7 pound packages (the 3 and 5 pound pails), stenciled or lithographed with business card, and warranted (formerly illustrated in this journal), about a cent and a half a pound. Lately the price has advanced until now it costs 2 cents a pound. I can pack in paper for approximately a tenth the cost of tin for equally large packages. Let me illustrate this by figures. The first order for bags cost me, f. o. b. Loveland, $45.06, and was sufficient to hold 23,000 pounds and a little over, while at the same time three-pound lard-pails would have cost me $450 and upward. Let me make another comparison. My last order for bags had some improvements, and cost a little more than my first one, but I wish to show the difference between this and glass. Of 2-lb. Muth jars, 70 gross would hold 20,160 pounds of honey, and would cost at Medina, Root Company's catalog list price, $525. Two-pound bags, same as sent to you, Mr. Editor, to hold the same quantity of honey, cost me, f. o. b. Loveland, about $70. The reason I say *about* is because I do not take time to hunt up the freight-bill, but I know this is very close. I have given the list price of the glass jars, but of course there would be a discount on so large an order; but remember that the freight to Loveland would be no little item on such a bill of glassware. The editor can, if he desires, tell what would be the discount on such an order for glass, and can also tell very close what the freight-bill would be to Denver; but I suspect the discount would not equal the freight. I suspect more breakage in glass too.

Taking the figures I have given, there is, in packing 20,160 lbs. of honey, a difference in favor of the paper package of $455. Any way you can possibly fix it, there is bound to be more freight to pay on the glass package after filled, and as it goes to the consumer, and more damage by breakage and leaking. I know the claim that the glass jar is worth its cost to the consumer, but that is not true. A little thought will show any fair-minded critic that the great mass of consumers, either in high or low station, have no use for the glass. Especially is this true of the laboring classes, and that is the class who will consume the larger quantity by all odds when the product is put within their reach. They can not possibly have any place to use the jars satisfactorily. Let me crack another nut for you. It is full of meat, and I hope to see it eaten and relished by all to edification.

There was a time in Loveland when we had no saloons, but now the enemy have us down and we have three. When 'twas dry, the people said the drugstores kept right on selling, and there was as much sold as if we had saloons, and they would have saloons and get revenue. Now that we have the saloons and the revenue, the people find that the saloon fills a place that the drugstore did not touch—that nearly all the saloon trade is in addition to the drugstore trade, and that drunkards, bad bills, and general viciousness and rows, have multiplied to the hurt of legitimate and proper trade. There is no need of any more saloons. The place one fills would be better left unfilled; but there is a field in honey trade that is not filled; and the cheaper package and more direct methods will fill a long-felt want, and it will hurt no one—no, not even the *bottle trade*.

THE NEED AND USE OF STORAGE-TANKS.

I have shown that the producer need not invest a great sum of money in packages in which to put up his honey for the retail trade. Paper is cheap. The bulk, too, while the goods are in the flat, is so trifling that any ordinary bee-keeper can carry in his arms enough bags to hold his crop, and the storage room is insignificant, as is the cost. Any bee-keeper can afford to have on hand enough bags to provide for any possible crop; but it is a problem with many to have tin or glass in stock for prospective needs. But this is not the only saving. It is customary with very many to put the crop into five-gallon cans, or something similar, holding in these until ready to put into glass or whatever it is to be retailed in; thus the honey is actually packed twice where once is sufficient, and all the trouble of melting and labor and fuel, as well as a plant of some kind to liquefy, is saved. Then there is usually a honey trade at the home or honey-house, and for this we must have a tank of honey kept warm and limber so it will run. This is drawn into customers' pails or whatever they bring for it, and this is a great annoyance too. Just think how much easier it will be to hand out a bag, or any number of bags, instead of pouring out liquid honey!

A part of any system of producing extracted honey is a storage-tank. This tank should never be left out. It saves time, helps to a better grade of honey, and for good results is indispensable. I know there are those who put the honey direct from the extractor right into marketing-packages; but I do not want such, nor does anybody who knows what is best. Some run it into a barrel or small tank, and from this to small packages, putting through the tank or barrel possibly a thousand pounds in a day. Thus it is impossible that the honey be settled at all. It ought *never* to be packed in retail packages without settling at least 24 hours or more, and then many times only from the bottom of the tank at that, the upper third or fourth being held longer. I know what it means to have unripe honey. All should be thoroughly ripened; and not only ripe, but should be settled long enough so that all the air may rise to the surface, and all particles of whatever may get in may rise to the surface.

Realizing some years ago the necessity of a large tank, how it would enable me to put out a better article of honey, and how it would be such a convenience to have storage room sufficient so that, if I had a ton or two to run at one time, I would not have to stop the extractor to draw off, and how nice it would be to be able to leave off ordering cans (that was before the present system was adopted) until I had the honey to put into them, I decided to get one that would give me all these advantages. The result was that I bought a five-ton galvanized steel tank, although I had a tin one that held 1100, another 600, and a third 400 lbs., and still another that held about 800. With the larger tank I can extract without fear of its overflowing, even if I run all day or two or three days. The extracting is done on the upper floor; the strainer is in the floor, and delivers its goods to the tank below.

A notable feature of our honey out this way is its readiness to candy. I have never had any remain liquid over four weeks after extracting, and sometimes it is solid in two to three weeks. This feature I count as a valuable one, for it enables me to put the honey into the retail package and have it solid and ready to ship in very short time. I let it remain in the big tank until it is begining to granulate, just as long as it will run. Sometimes it will begin to granulate at the bottom before the top shows any signs, probably because that at the bottom was extracted first and has been in longer, and probably in part because the top is more thin and watery. Then, too, it will surprise almost any one how much scum and bits of wax will accumulate on top after weeks of settling. This should be skimmed off; or if the tank is not convenient for skimming it may be left as it is, just drawing off until this is brought to the bottom, then the skimmings may be drawn out, and the whole warmed and restrained or skimmed in some smaller vessel. But in case the honey toward the bottom is much more candied than the top, better, if possible, skim before drawing; then take a big hoe, or something suitable, and stir and mix the whole tankful as thoroughly as possible. The more it is mixed, the better. It will be of more even grade. and candy all the more rapidly. I have, when I wanted some to candy quickly, mixed some candied with the liquid, and stirred them together. To do this I take a can of candied, and warm it, stirring so that it will get into a mush before it is fully liquid, then stir in. This plan is resorted to when my stock is out, and I want some speedily to fill orders, say just as the new honey comes and the last is exhausted.

You will possibly say that the big tank is an expensive thing and can not be afforded. Look at these figures: My tank holds five tons, while it would take 83 cases of 60 lb. cans to hold as much, which would cost, at 75 cents, $62 25. My tank cost $35, though such goods are higher now, but tin is high too. But the better product, and the convenience and saving of time, will quickly pay for the tank, and it is a permanent thing.

For the average producer I would not advise so large a tank, possibly two to three tons, but always enough tank room to hold the honey long enough to be well settled. Five tons is a large amount of honey in a body, and I doubt if it is wise to risk more than that in one receptacle; for if a gate should be misplaced it means a big loss. However, for heavy producers I would not recommend any smaller size. One does not have to fill it full, yet in emergency the extra room is *very* handy. Have the gate put in the bottom, coming out with an elbow in a pipe, if a common tank is used. If I had my preference I should want it fixed much as the extractor-cans, so that the honey will all run out.

Friend Root, possibly you will think this is a lot of talk about tanks and such things in a consideration of paper bags in which to sell honey. Perhaps it is; but it is important to the system. I have been unfortunate enough to buy extracted honey that would not do to put into tin, much less into paper. Then, besides, the paper bag is only a part of a system to enable the producer to get something out of his crop in a feasible way. Now I will tell you more about bags.

When figuring out what sizes I wanted, I concluded that 2, 3½, 5, and 10 lbs. would be about right; but what dimensions would be best for appearance and convenience? I adopted the following, which I am quoting from my original investigations: For 2 lb. size, the bottom is 2½ inches square, and when opened is 7½ inches deep. The 3½-lb. is 3 inches square and 9½ deep. The 5-lb. is 3½ by 10, and the 10-lb. 5 by 10½. These measurements, when containing the amounts, leave enough top to the bag to fold over the honey to keep out dust. I have previously spoken of the square shape of the bottoms. This is necessary unless the bags are to be held in a form or mold while hardening. With this bottom the bag assumes the round form when filled. All things considered, I believe the round better than any other shape. If square, the corners would be much more subject to damage than a round surface, and then there is no need of any mold or form. So far I have just put the bags into boxes and let them stand, the boxes piled on top of each other. I plan, however, to make special boxes or trays, these to be tight enough to keep out dust and insects, as flies, but so as to lie flat when not in use, so as to store in small space, making each tray so that the bottom of each is a cover for its neighbor beneath.

The bags must be paraffined or waxed. I got the first lot without waxing, and the majority of those used in experimenting proved satisfactory; but I got one report, and had one experience at home that showed the need of waxing. I will say that my experience with the bags in marketing is as yet limited. It was but a year ago that I undertook to use them for general marketing, and then I had a stock of lard-pails that took the bulk of my 1901 crop. It was in that year that I developed the bag question to the point that I was satisfied to adopt it, but did not get in the first order for bags till in the winter of 1901 and 1902, then I had to melt honey and repack; but I did this, and put up enough to send shipments to several customers, sold some to peddlers, and some in home stores.

A customer from another State reported that he thought the honey would not keep in his climate—it would melt. About the same time, I had some bags standing where there was a draft of damp air from the greenhouse and cellar passing over it, and during a few days of damp foggy weather I found the bags drawing dampness so that the honey just under the paper was getting soft, and the bag sticky. But while this was an unintentional test, it so happened that there were both paraffined and unparaffined bags in that particular spot, and the waxed was dry and in as good condition as ever, only the unwaxed being damp and absorbing moisture. I was glad to have that experience, for I was about to buy many thousands to put up a big prospective crop; but the new stock were ordered all paraffined, and it is of them that the editor has samples. Experience teaches us many lessons, and I found two more as I dealt with the new waxed bags. First, the manufacturers packed the bags in bundles wrapped in heavy paper, and tied with cord, and in the long journey from New York the wrappings were worn through in some places, and torn in others by the rough and tumble with other goods. In shipping they should be so packed that they can not be damaged. There was no great number spoiled. The other thing learned was that when opening the bag to fill, they ought not to be so cold that the wax is hard, for sometimes the paper will break into a little hole. It would be all right in summer weather, or in a room not too warm at all to work in. Both these points are simple and easily adjusted, but are some of the details to be understood.

In closing I will just say that the question of marketing in the candied condition is settled. No doubt there will be many people who will continue to say it can not be done, but I know it can, and have done it. It seems to me that, after selling in many towns and several States, and that everywhere the honey goes it always calls for more, until I can not produce enough to supply my demand, ought to be evidence enough to satisfy any ordinary mortal that there is something in it. Some will call me a fool for telling about it; but I am not one of the other kind of fools who think that selfishness is the sum of wisdom. As I said at the Denver convention, there is a field almost as wide as the commercial world, and why should I be so niggardly as to withhold information from my brethren that may help them while it will not hurt me? There is room yet for many more in the marketing field.

One thing more: This development has cost me something. If it helps others, I shall rejoice in their prosperity; but, brethren, please don't flood me with letters to know all about it, and ask me to take my valuable time to write all over the country detailed descriptions at my own expense and neglect of my own business. I have to make a living by the sweat of my brow as do others. A few have written and asked information and samples, and have inclosed stamps, and this is no reflection on them, and they are not so to consider it. My purpose in writing this is to forestall those who are so thoughtless as to expect long replies without even a return stamp.

Loveland, Col. R. C. AIKIN.

[I will explain to our readers that the bags of honey here shown are those which were facetiously styled by Mr. Abbott, at the Denver convention, "bologna-sausage packages." This raised a good deal of merriment, and, as I reported in GLEANINGS at the time, there was a warm discussion between the candied-honey men on one side, led by Mr. Aikin, and the bottled-extracted-honey men on the other side, led by Editor York. Both sides gave "convincing proof" that *their* way was *the* way to sell extracted honey.

Notwithstanding all the fun about the bologna-sausage package, I believe it has come to stay, and Mr. R. C. Aikin deserves a vote of thanks for showing what can be done in putting up extracted honey in a package that costs practically nothing, and in so compact and substantial a condition that it can be shipped clear across a continent without leakage or damage. Indeed, Mr. Aikin, at my request, made to him at Denver, sent me a kegful of his bologna honey. Every one of those "sausages" came through in good condition. They were packed in the keg with straw, and came through as "honey in kegs."

They were quite a novelty in our honey department, and were prominently displayed on our shelving near the time-clock; and as the employees marked off their time, they stopped, looked at the honey, admired it, and (would you believe it?) without any urging on our part they came very near taking the whole lot before I had a chance to see any of it and sample it. I got downstairs just in time to save the few packages shown in the photo, and get one for myself. "My, oh my!" I said, "don't sell any more."

"But," said the time-keeper, "the men are clamoring for more. They say it is the nicest honey they ever tasted. They like it in that shape."

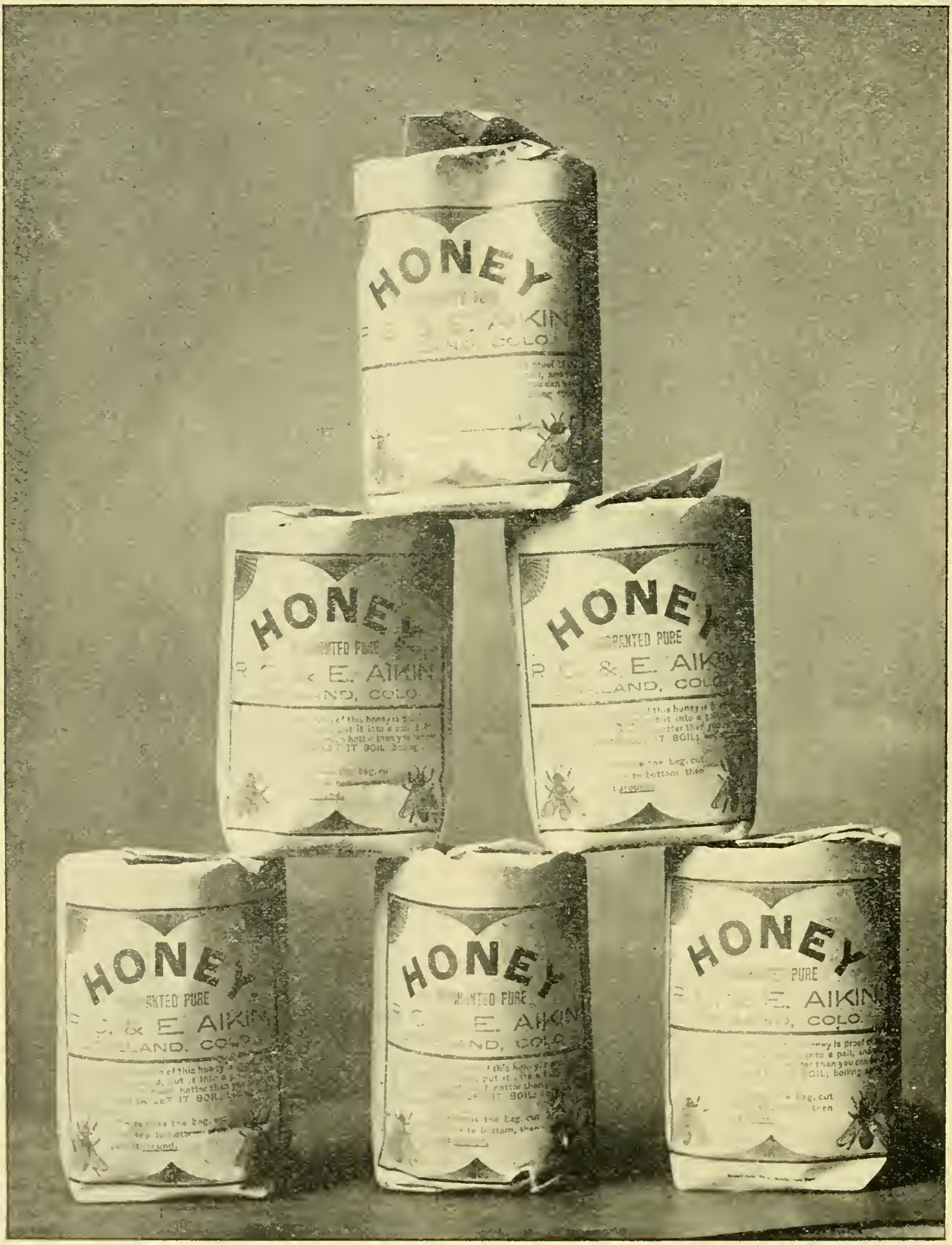
And that reminds me that we have quite a number of employees who prefer candied honey to the liquid transparent article, because it can be spread on bread and butter, and eaten without smearing up a mouth covered with whiskers.

A little inquiry showed that the employees felt that, when they were buying the new "bologna-sausage" honey, they were not wasting any money on the package. They were buying just the pure condensed sweetness in very palatable form. If Mr. Aikin had only sent us a barrel of it, I believe it would have been all taken in a day, and even now our men are asking for more of it.

Well, I took one package home to my own table; and while I am not a great eater of honey I set a "sausage" on a plate, peeled it according to directions, or about as shown in the picture. My folks were away from home, and I was at liberty to eat in a way that would probably have called down the disapproval of my wife. Yes, I "shoveled" that honey in — spread it on my bread, and enjoyed a huge feast. The honey tasted all the better to me because I thought here was a package that cost practically nothing so far as the contents were concerned, and which I was satisfied was a commercial success.

In the modern bill of fare the day may come when we shall see bologna-sausage honey as one of the articles; and I can see in my mind's eye the waiter at the hotel bring on one of those cheeses on a plate; and I can just fancy the epicurian sitting down and shoveling that cheese in. But, of course, the consumer will have to be educated. It would not do to put such an article in the restaurants of Chicago, especially if Bro. York were around. It would not go. But in Denver, in Loveland, in all localities where honey in candied form is recognized as a standard product of the hive, these cheeses will go like hot cakes.

And, only think—these bags can be reduced in size, so that one with a sweet tooth can go into any of the stores and buy a nickel's worth, peel his "sausage," and get an amount of sweetness that will leave any form of confectionery clear in the shade. What would be the matter of getting our newsboys on the train educated up to selling a nickel's worth of honey just as they sell cracker-jack, chewing-gum, and a dozen other things? Let the boy explain that this is guaranteed to be absolutely pure honey. Let the grocer tell the same thing to his trade. Let there be printed matter showing how it is put up, and why honey candies.


HONEY
HONEY
GUARANTEED PURE
R. C. & E. AIKIN
LOVELAND, COLO.
LET IT BOIL
HONEY
GUARANTEED PURE
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LOVELAND, COLO.
HONEY
PURE
R. C. & E. AIKIN
LOVELAND, COLO.

AIKIN'S PAPER-BAG HONEY-PACKAGE FOR CANDIED HONEY.

I do not believe in going back on bottled honey or comb honey; but let us cater to all kinds of trade and demand of a legitimate character. In our exhibits of honey let us show the beautiful white combs in sections—clear sparkling honey in bottles, in tins, and, last of all, hold up to the unsophisticated public another form of honey in paper bags. Explain that it is pure, and then say that honey in that form is the cheapest sweet, and perhaps you may say the purest; for only the very best of any extracted honey will candy, the thin and watery portions usually draining off.

I suggest that our readers try this bologna-sausage package. They should get the bags and learn just how to put the honey up. Set it outdoors where it will quickly candy when the weather is cold; and when it turns to a nice compact solid, just try your local trade. But do not fail to post the retailer on the merits of the goods.

I tried to engage quite a quantity of Aikin's bologna-sausage honey; but out of his crop of 23,000 lbs. he has only a little left, and he explained that he could send only a little. He had practically sold all out, and he could not get enough of it. Colorado honey was a rather scarce article last season, as our readers may possibly know.

It is possible that Eastern honey would not candy quick enough to make the bologna sausage practicable in the East. The dry climate of Colorado, and its beautiful alfalfa that candies so quickly, make the bologna-sausage package one of the best novelties ever introduced in the State. There are other States, like Texas, California, Utah, Idaho, and Montana where such a package would be a perfect success, even if it could not be made a commercial possibility in the so-called rain-belt of the East.—Ed.]

[*Later.*—Just after the foregoing was written I sent one of these packages of bologna-sausage honey by *mail* to Dr. Miller. I gave instructions to the mail clerk to give it no special wrapping, but merely to cover it with strong paper, tie it, and put on the necessary postage. My idea was to see whether honey could be sent that way in 2-lb. packages by mail, without endangering Uncle Sam's mail-bags. There certainly would be no trouble during cold weather, and I do not think there will be much during summer. Knowing Dr. Miller to be somewhat opposed to candied honey I sent this sample, thinking that it would go a long way toward convincing him of the marketability and edibility of this form of bologna-sausage honey. In writing about some other things in a private letter he has this to say about the bologna-sausage honey, and it speaks for itself:]

As to Aikin's "bologna sausage," I have read what he has written on the subject, and heard him talk about it, but never took such a great deal of stock in it. But a live specimen of the article on the table before me during one meal has converted me.

Heretofore my view has been about this: "Yes, it saves money to use paper for the package, and so it can be sold for less, and thereby the consumption may be a little increased, but that's all that can be said in its favor. I don't like the granulated as well as the liquid article, and most people are of the same mind."

AIKIN'S PAPER-BAG HONEY-PACKAGE DISSECTED FOR THE TABLE.

But the "sausage" was before me, and it was only fair to give it an impartial trial. I took my penknife, slit down the paper in three or four places, peeled it off, and left lying on the plate the honey, looking much like a brick of butter. Right then and there I was strongly impressed with the *convenience* of the package; and not only that, but the convenience of the honey after the paper was removed. Indeed, I think Bro. Aikin has been somewhat remiss in not making more of this matter of convenience.

The simple matter of peeling off the paper is more convenient than getting candied honey out of any other package whatever. On the whole it is doubtful whether any package of liquid honey can claim the same convenience. The paper peels off clean without any waste, and can be thrown into the fire. Empty liquid honey out of any package, and unless a good bit of time is taken there will be waste.

The convenience continues after the package is skinned. The whole brick may be left on the plate; but it is, perhaps, better to take off a slice, just as you would of butter, say a quarter of a pound or so. Then with a knife on the plate to go with the honey, let it be used exactly as butter, and the convenience over liquid honey will loom up. Help yourself to liquid honey, and if you are not an expert you will have it stringing over the table. No matter how expert you are, you will have trouble in getting just the amount you desire. With the candied honey *on a plate*, you can gauge the amount you take just as easily as if it were butter.

Then it is more convenient to get on bread the candied honey in just the amount you want, and *just where you want it*. When using liquid honey on bread I do not always succeed in keeping it from getting on my fingers; and one of the things that I abominate is honey on my fingers. Sometimes I get the honey in my whiskers, and I feel pretty sure I should get my mustache daubed with it if my face were decorated with an ornament of that kind. With candied honey there is no more trouble than with butter.

But when all is said about the matter of convenience, it is candied honey after all, and I didn't like candied honey. Now I am ashamed to make the confession, but I may as well be honest, and confess that, although I am a man full-grown, I had never before thoroughly tested candied honey. On this particular evening, however, I determined to go the whole figure, not merely using the candied honey on a single mouthful of bread, but on several slices. *I liked it.* I couldn't see but that I liked it just as well as liquid honey, although it was a superb sample of honey, and perhaps it was not just the fairest test. It came to me from Medina, but I *think* it was put up by Aikin. If it was a fair sample of what he is dealing out to customers with little means, I do not wonder he can work up a trade.

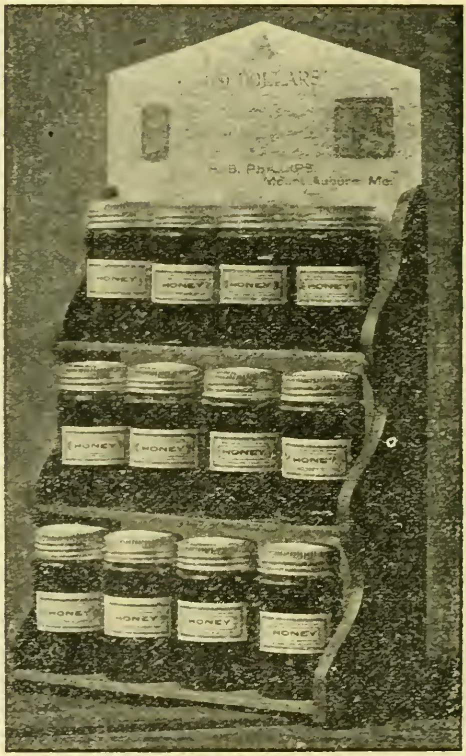
Now don't be too hard on me for being so prejudiced that I *thought* I didn't like granulated honey, when all the time I really didn't know. I suspect that a large number of people in the world are in the same boat, and all that is needed to convince them of their error is to get them to give the matter a fair trial. And it may be that the "bologna sausage" is the best thing to help secure that trial. C. C. Miller.

Marengo, Ill.

Heads of Grain from different fields

I send you, under separate cover, a photo of my honey-stand. It is made of whitewood, and finished in its natural grain. The sides are ½ inch thick, and shelves ¼ inch. The display card on top of the stand gives my guarantee for the honey I sell; also a few facts about extracted honey. I have used these stands for nearly three seasons, and they have more than doubled my sale of honey. The merchants are pleased with them, and give them a good place on their counters.

Auburn, Me. H. B. Phillips.



[Mr. Phillips sends a printed letter to the merchant, offering him a honey-stand free of charge on the receipt of an order for six dozen jars of honey. As the honey is heated and sealed air-tight it is not expected to candy; but if it does it will be replaced with that which is liquefied. The jars are returned to the merchant from the consumer, who receives 3 cents for them, and the merchant in turn sells them back to Mr. Phillips for 3½ cents.

This stand looks very much like the Williams stand as shown in the A B C of Bee Culture, under Extracted Honey.—Ed.]

WILL THERE BE FIGHTING AT THE SECOND DRIVE IN FORCED SWARMING? TINNED WIRE FOR BINDING GLEANINGS.

In brushing swarms, when the second drive is made after all the brood is hatched will the bees of the first drive not kill the bees that are being run in the second time? I should like to know how to manage that part of it, as I don't want any increase.

Did you ever hear of sewing the back numbers of a book with tinned wire? It is a better binding than wire nails, as they are too stiff. C. Blake.

Wilbur, Ont., Feb. 10.

[As a rule there will be no fighting at a second drive, and especially so if both lots of bees be smoked before the union takes place. One should be careful, of course, that the second lot of bees should not have a virgin queen or something they recognize as such. If they have one, and there is no choice between the old and the one furnished by the second drive, brush them together, for the bees will take one of the queens, disposing of the other.

Your scheme of binding with tinned wire is excellent, I believe.—Ed.]

HOW TO MOVE BEES A SHORT DISTANCE; ARTIFICIAL BEE-PASTURAGE.

1. I wish to move and change my bees in the apiary to which they belong. They are too close together, and face the east. I want to change them into rows facing south. When and how is the best way to do it?

2. What is the matter with motherwort for a honey-plant? I see you don't give it in the A B C of Bee Culture.

3. In the spring, when bees are getting some pollen and little honey when feeding, ought it to be done at night, so as not to bother them from working? Does feeding make them lazy about working on plants.

Jamesport, Mo. J. W. Baldwin.

[1. If the bees have been confined in hives outdoors for two months at a time, or, better still, if they have been in a cellar all winter, they can be set on their summer stands next spring anywhere without any trouble; but if they have a flight every week or so, so that their locations are fairly well fixed, it would not be advisable to make a slight shift of the hives.

2. Motherwort is a fairly good honey-plant if there could be enough of it found growing wild on waste land. It very seldom cuts any figure in the hives, because ther is so little of it. We once had quite a patch of it on our honey-farm; and, while the bees were very busy on it, we found it would be too expensive to furnish artificial pasturage of this kind to take care of an apiary. The land could be more profitably used in growing something that would furnish hay, fodder, or seed, as well as nectar. It is an established rule that it does not pay to plant any thing for honey unless the crop, aside from the honey, will pay the expense of cultivation. In this list we can include alfalfa, buckwheat, rape, and white, red, and crimson clover. Where there is a great deal of waste land that is growing up to weeds, one can, to some little advantage, scatter sweet-clover seed, and perhaps catnip; but he will have to do a tremendous lot of scattering before he begins to discover any effect in the hive. Dr. J. L. Gandy, of Humboldt, Neb., has probably done as much as any one in this line; but it is to be doubted whether he has been able to increase his honey crop materially by scattering seeds of good honey-plants.

3. Yes, it might be advisable to feed at night; but in case the bees are not disposed to forage as much as they should, a little stimulative feeding during the day will make them rush into the field to discover the source of this new supply. Ordinarily bees need no stimulating of this kind.—Ed.]

YELLOW BUTTERFLIES NOT ENEMIES OF THE ALFALFA-PLANT.

Mr. Root:—The yellow butterflies (species of colios) never injure clover of any kind, nor any plants. They sip nectar from flowers, and may and do aid some in pollination. The caterpillars do at times eat from the clovers; but, so far as I have ever observed, they are never abundant enough to do any considerable harm. I know of only two serious enemies of alfalfa —gophers and goldthread, or dodder.

Claremont, Cal. A. J. Cook.

[It was probably a mistake in supposing that the yellow butterflies had any blighting effect on the blossoms of the alfalfa. The fact that they swarmed over the fields of it in countless thousands, so that the air was yellow with them over the fields, shows that they were after the nectar as well as the bees, and to the extent that they robbed the bees of just so much honey, to that extent they were an enemy to the bee-keeper. We are obliged to Prof. Cook and others for the correction.—Ed.]

THE QUICKEST METHOD OF INCREASING.

1. What is the best way of increasing the number of hives in a small yard to the largest number possible, in as short a time as possible?

2. By the method that you will likely mention, what number could you reach in one season, providing you started with 20 fair colonies and the season is favorable?

Addison, Ont., Feb. 13. A. G. Lee.

1 Almost any standard method of forming nuclei will give you good results. These have been given so often in our columns that it would be unnecessary to repeat them here.

2. I do not know what could be done; but I once took 12 colonies, and without any

feeding increased them to 100 strong colonies, and secured about 1000 lbs. of extracted honey. This was done at an outyard which I visited on a bicycle once a week, during the season, spending about four or five hours each trip. If one practices stimulative feeding — feeding before and after the honey-flow — he could, if he had the requisite skill, go beyond this. At the time I made this increase we had a good season for honey, and ordinarily I should not expect to do as well.—Ed.]

NOTES OF TRAVEL

BY A. I. ROOT.

How then shall they call on him in whom they have not believed? and how shall they believe in him of whom they have not heard? and how shall they hear without a preacher?—Romans 10:14

One Saturday afternoon Mr. W. W. Somerford (the "man who talks," as poor Rambler had it) came to our rooms (No. 89 Prado), and said we were to go out to his place on our wheels that evening, and that he would then, Sunday morning, take me over to Mr. Fraser's mission at Guanajay. You may think it funny, but Guanajay is usually pronounced "Wah-nah-*high*." In Spanish, *gu* is given much the sound of *w*, and *j* is always called *h*, or given the sound of *h*, and the accent is on the last syllable.

It was so late before Somerford got ready to start, darkness overtook us; but before it was quite dark we stopped to look over an apiary that has quite a history. Our older readers may remember that, years ago, A. J. King, of the *Bee-keepers' Magazine*, came to Cuba to start an apiary on what was then considered a pretty large scale, for the Casanova Brothers. It was about the time I commenced sending out the "Simplicity" hive, or hives made so they could be piled up two, three, or even *four* stories high. The Kings made a hive similar, and called it the "Eclectic" hive. For shade, the wealthy owners made sheds of galvanized iron, supported on iron posts, and these sheds are standing to-day, not only durable, but artistic and neat in appearance. After the Kings left Cuba, Osborne (formerly of California) took charge of this apiary, and it was here he ordered from us the largest extractor in the world, to be run by a steam-engine. I saw the engine and the great "Jumbo" extractor; but both are now standing idle, while a Cuban takes all the honey with a common small extractor to be turned by hand. This once beautiful apiary that cost so much money is now very much on the road to ruin.

After we took the road we had both darkness and rain, and I should have given up getting home until Sunday morning, but not so our good friend S. He is not only a "talker," but he is a "pusher" in any thing he starts out on. For a time it seemed as if we could not keep our wheels under us, they slipped about in the mud so badly; but S. declared a little further on the roads were of a different character, and so it proved. His bright little wife was taken rather by surprise to see a visitor covered with mud ushered in late Saturday night, and she made quite an apology because my bedroom was so filled with crates of beautiful section honey I could hardly get into it. I replied something like this: "When I first became crazy on bee-keeping, long years ago, I used to dream of great piles of beautiful honey in neat little packages. It was only a dream, however, then; but now, to-night, should I wake up and see by the bright moonlight what is all around me, I might, for the first time in life, find my boyhood dreams *all realized;* therefore, dear Mrs. S., do not feel at all worried, even if I do have to turn 'edgewise' to get to that pretty little washstand when I get up in the morning."

Mr. S. has something new in bottom-boards for hives. His are made of stone, or, rather, of the material they make the tiles of for roofing their houses. They are made at a tile-factory, and cost only about ten cents each. They can be set close to the ground, and never rot or warp. He was then filling an order for "chunk honey" in square cans. He has large screw caps put on the cans (six inches or more across); and after the can is filled with pieces of comb honey, extracted honey is poured over and around it, and he said he was then getting more per pound for it than other bee-keepers were getting for comb honey in sections. I presume, however, this demand did not continue; for while I write I am told he is in New York marketing that nice honey that filled my bedroom that night.

Sunday morning Mr. S. and his wife on their tandem, and Mr. Hill and myself on our wheels, all started on the beautiful calzada (government stone road) for church and Sunday-school, nine miles away. On these beautiful stone roads, graded so as to have no hills that one can not run up and down without trouble, it is no task at all to go on a wheel ten miles to church. I have several times "reeled off" a mile every 5 minutes. At every kilometer (pronounced here *klom*-eter), there is a stone post with big plain black figures, numbering the distance. A kilometer is about two-thirds of a mile, and these "mile posts" are *exceedingly* convenient. I think Bro. Fraser will excuse me if I say right here that I am *very much* in love with himself and his good wife. One explanation is that, before I met them, I was hungering and thirsting to see some kind of mission work going on in Cuba. Mr. Somerford told me Fraser was a man after my own heart, and also that, in *his* opinion, he was one of the very *best* men in the world. Mr. Fraser has been on the island three years, under the auspices of the American Missionary Society. He has a very pretty building near the center of the town, that contains the schoolroom, library, and a very pretty home for his family. He has Sunday-school and preaching every Sabbath, and, I think, a Thursday-evening meeting; then there are two free evening schools during the week, to teach English, to any one who may want to learn. I have been there two Sundays, and have at each service talked to the children and people, through Bro. F. as interpreter. My eager desire to know them and learn their language was met by them perhaps more than half way. It may seem a little extravagant for me to say it, but it seemed a good deal like "love at first sight," on both sides. They were mostly children eager to learn, and for *their sakes* I became a child too for the time being. There were some fathers and mothers present, and they soon became warm friends of mine because of my anxiety for the best interests of the children. I asked how many had Bibles, Testaments, or parts of Bibles, that they could read every day. Almost all raised their hands. Brother F. said they regarded the lesson-papers and cards with texts on as a part of the Bible. When I asked how many read something from the Bible every day, they almost all raised their hands. I told them of the happiness I found in reading my Bible every day in Spanish, and advised them in a like manner to learn to read the Bible in English. I told them it was a sad fact that there were some very bad words in English, but I *hoped* there was nothing to correspond in Spanish. There was some sad shaking of the heads, however, as they thought the matter over. I have been assured, however, that profanity and blasphemy are not nearly as common in Spanish as among the Americans. If this *is* true, dear friends, shall we not all try *very* hard to avoid teaching this great evil while we give them English that they may get what is good? They (especially the children) are looking to me to teach them what is new and what is valuable. May God help America to use this great opportunity to teach, to give them *only* what is good and pure. I asked if it was possible to "tell lies" in Spanish, as people do in English. A very bright-looking business man said, "Tell Bro. Root that the very same words that are used to tell the *truth* can also be used to *tell lies*."

One great feature of the work is singing Gospel Hymns. When words are sung, there is plenty of time to give a full and correct pronunciation to each one. I am quite sure no music was ever sweeter and more touching to me than to hear those childish voices express the beautiful sentiment of these hymns in the Spanish tongue. At the close of the service the roll is called, and each one responds with a scripture text. There were 94 enrolled, and something like 80 present; and I do not remember that a single one, young or old, failed to repeat a text. They were on hand, many of them, long before meeting time, and a crowd was always in the street before the open windows during each session. Several lingered after meeting to practice hymns. On one of these occasions two bright young men sang several Gospel Hymns with me, first in English, then in Spanish. They corrected my pronunciation, and then in turn I corrected theirs. While their awkward attempts to speak our words as I spoke them made me laugh, it drew my heart toward them in a way I have never felt before. I *know* they will be honest and true, for the love of Jesus Christ, that love that "surpasseth all understanding," is in their hearts. One of them said, as we closed our mutual lessons, something like this:

"Mr. Root, I am glad you came here. I hope you will come again — often. It gives me much pleasure to know you."

May the dear Savior guide, direct, and keep Florentina in his efforts toward a new life, and in his desire to learn all that is good and pure and true. At one of the week-day meetings Bro. F. put on the blackboard the first verse of the Gospel Hymn, "Wonderful Words of Life:"

> Sing them over again to me,
> Wonderful words of life;
> Let me more of their beauty see,
> Wonderful words of life.
> Words of life and beauty,
> Teach me faith and duty—
> Beautiful words, wonderful words,
> Wonderful words of life.

It was very plainly written, and one pupil after another came up and stood before the board and read it aloud in English. With some prompting, all got through with it. Many had to try again and *again* after their patient (and loving) teacher; but the final was when they all joined together with enthusiasm and *sang* the verse through. I did not know what the custom was, but I could hardy resist showing them *my* appreciation of their efforts by clapping my hands. It seems they understood it, for I got a volume of thanks, expressed in different Spanish words and phrases.

Now, lest I am giving the bright side too much of all this mission work, I might add that there is considerable noise and disorder in all their exercises. Brother F. was inclined to feel troubled about this: but I said, "Never mind the noise. A noisy school is far better than a dull sleepy one." He told me, however, that, just before I came the second time, some boy fixed a pin so as to stick out of the toe of his boot. This he pushed up through the cane-bottomed chairs so as to make people jump; and the trick was played, not only on the *boys*, but on *young ladies* as well. Mr. F. did not get hold of the guilty one, but he gave the whole school such a "lecture" that it stopped at once.

The great Father has not made us all alike. Some have remarkable talents in one direction and some in another, but this dear brother has a remarkable gift for this kind of work. I thank God that he has given me such a love for my fellow-men that I can at least appreciate and see something of the outcome that is likely to follow such undertakings.

FOUL BROOD MAY COME

into your apiary when you least expect it. The sooner you discover its presence, the less difficult and expensive will be its eradication. If you know exactly what to do when you discover it, much valuable time may be saved. No better instruction and advice on these points can be found than that given in a five-page article written by R. L. Taylor, and published in the February **Bee-Keepers' Review.** It is comprehensive, yet concise. The description of the disease, the instructions how to detect it, are the best and most complete of any I have seen. No one need be mistaken in identifying foul brood after reading this article.

Mr. Taylor then goes on and tells how to hold the disease in check (a very important point), prevent its dissemination among other colonies, bring all of the colonies up to the honey harvest in a prosperous condition, secure a crop of honey, and, at the same time, get rid of the foul brood.

If you wish to know how to recognize foul brood to get rid of it with the least possible loss if you wish to be prepared for it should it come, send 10 cents for a copy of this issue of the **Review.** With it will be sent two other late but different issues of the **Review;** and the ten cents may apply upon any subscription sent in within one year. A coupon will be sent entitling the holder to the **Review** one year for only 90 cents.

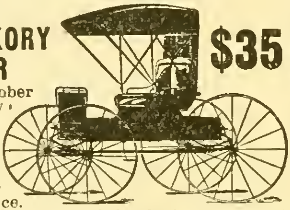
W. Z. HUTCHINSON, Flint, Mich.

Split Hickory Buggy Bargains

Sold direct to user from factory at factory prices, sent anywhere on **30 DAYS' FREE TRIAL** and guaranteed for two years. **Our 1903 catalogue is now ready and contains hundreds of exclusive styles of vehicles and harness of every description.** It is free and you should send for it before buying a vehicle or harness. We manufacture every vehicle we offer for sale. If you get a Split Hickory you are sure of getting something that will please you and a bargain. Remember you can only buy a Split Hickory of us direct as we do not sell jobbers or dealers.

This is our

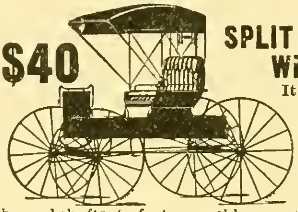
SPLIT HICKORY HUMMER



$35

Has 30 oz. full rubber top, split hickory wheels, best steel axles & springs, finely finished, neat, strong and substantial, the best value ever offered at the price. Sold on 30 days' free trial and if it don't prove itself a bargain and if you don't consider you have saved $15.00 send it back.

$40



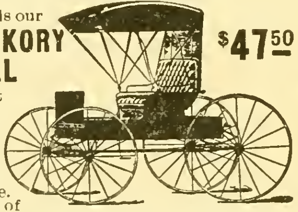
Our

SPLIT HICKORY WINNER

It not only wins trade for us, but praise from every user. Has genuine leather quarter top, spring cushion and back, boot, carpet, double braced shafts, in fact everything complete and up-to-date. Is roomy, comfortable, easy riding and light running. Everyone shipped on trial, no questions asked if not satisfactory; just send it back if it isn't $20.00 cheaper than equal quality at retail.

And here is our

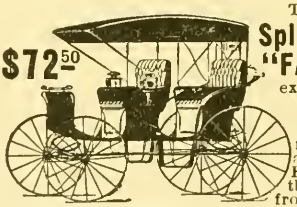
SPLIT HICKORY SPECIAL



$47.50

the buggy that won such favor in every state in the union last year. Impossible to give description here. Has 100 points of merit. Nothing like it ever offered vehicle buyers before. We only ask a comparison with a $65.00 buggy at retail and if, in your judgment, it isn't better don't keep it. Costs you nothing for the trial.

$72.50



This is our

Split Hickory "FASHION" extension top SURREY

Roomy, comfortable, strong and substantial. Equal to surreys that retail for from $100 to $125. Will last a lifetime. Everyone shipped on 30 days' free trial and guaranteed two years.

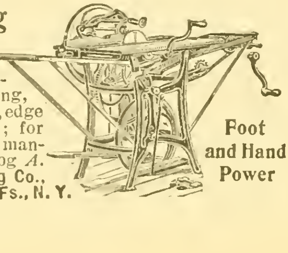
Write at once for our free catalogue of vehicles and harness; a penny spent for a postal may save you $25.00. Remember there is only one place to get **Split Hickory Vehicles** and that is at our factory. We have no agents.

OHIO CARRIAGE MFG. CO., - Station 27, Cincinnati, Ohio.

FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.,
Box 101 Winchester, Indiana, U. S. A.

"This for That" Trade anything you have for anything you want. Get our gigantic paper which prints thousands of exchange advertisements. Six months' trial subscription, 10 cts.
"THIS FOR THAT" PUB. CO., 1342 Star Bldg., CHICAGO.

Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

850,000 GRAPE VINES

100 Varieties. Also **Small Fruits.** Quality unsurpassed. Warranted true. Very cheap. **3** sample vines mailed for **15c.** Descriptive price list free. **LEWIS ROESCH,** Fredonia, N.Y

HIGH CARBON COILED SPRING STEEL WIRE
FENCE
INDIANA STEEL & WIRE CO.
CATALOGUE FREE. BOX 309 MUNCIE, INDIANA.

For 1903 You Require I Supply PERFECT QUEENS

My queens took first prize at the State Fair, in Nov., 1902. I have piles of testimonials from leading bee-men to the good qualities of the queens I sent out last season. Under date of July 3, 1902 F. A. Lockhart, of Caldwell, N. Y., writes: "The doz queens arrived all alive, and are a FINE LOT; "and again later on, "We like your stock, it is O. K"

I am adding extensively to my queen rearing plant, breeding in separate apiaries Golden and Leather-colored Italians (both strains are red-clover workers), Carniolans, and Holy-lands, of choicest strains. My Golden stock is from one of Doolittle's choicest breeders All my queens are raised under the best possible conditions, from extra-good honey-gatherers. Queens ordered now will be mailed when desired. Untested, $1.00, or $9.00 per dozen; tested, $1.25; a few choice breeders at $2 50 each.

GEO. J. VANDE VORD, Daytona, Fla.

HONEY QUEENS!

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

Laws' queens are doing business in every State in the Union and in many foreign countries.
The demand for Laws' queens has doubled any previous season's sales.
Laws' queens and bees are putting up a large share of the honey now sold.
Laws' stock is being sold for breeders all over the world. Why? Because it is the best to be had.
Remember! That I have a larger stock than ever; that I can send you a queen any month in the year and guarantee safe delivery; that I have many fine breeders on hand. Price $3.00 each. Tested, each, $1.25; five for $6.00. Prices reduced after March 15. Send for circular.

W. H. Laws. Beeville, Texas.

Do You Buy Queens

If so, it will pay you to investigate my claims. I breed from best honey-gathering stock, and rear queens by best-known methods. I guarantee good queens, and beautiful, gentle bees. Some of my customers have bought 100 to 300 queens per year for *their own yards*. Write for circular and information.

J. B. CASE, Port Orange, Fla.

Leather-colored Italians For Sale.

My bees were awarded 1st premium at the Minnesota State Fair in 1902 and 1901. Queens guaranteed in quality and transportation. In standard 8 or 9 frame hives, $5 00 each on car. A reduction on lots of 20 and over. Ready for shipment April 10

W. R. ANSELL, Mille Lacs Apiaries,
Milaca, Minnesota.

CATALOG FREE!

BAR. and W. PLY. ROCKS, W. WYANDOTTES, B. MINORCAS, LANGSHANS, LT BRAHMAS, W. and BUFF LEGHORNS, HOUDANS.

As good as you pay double for or your money back. **W. W. SHAMPANORE,**
Box D, Little Silver, N. J.

Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago, Ills.

Expansion in the West.

Increased trade with the Orient and wonderful commercial activity are 1903 features along the Pacific Coast.

Only $33 Chicago to San Francisco, Los Angeles, Portland, Tacoma, Seattle, and many other Pacific Coast points, February 15 to April 30, 1903.

Via Chicago, Milwaukee, and St. Paul and Union Pacific line. Three through trains daily. To the Northwest via this route, or via St. Paul.

Information on request.

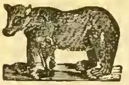
F. A. MILLER, G. P. A., Chicago, Illinois.
E. G. HAYDEN, T. P. A., 217 Williamson Building, Cleveland, Ohio.

PATENTED
TRADE MARK

The "Star" Ventilator.

Storm proof, effective; for ventilating all kinds of buildings, barns, stables, and factories of all kinds. Send for illustrated booklet

Merchant & Co., Inc.,
Philadelphia, Brooklyn,
New York, and Chicago.
M'nf'rs High grade Bright Tin



H-T-T published monthly; 64 pages; tells all about hunting, trapping, and raw furs Sample copy 10 cents.
Hunter-Trader-Trapper, Gallipolis, Ohio. Box 31.

10c Sheet Music Old favorite and standard pieces. Catalog free Also latest popular hits at 21c postpaid.

Also Books. Write for prices on any thing you want.
M. T. Wright, Medina, O.

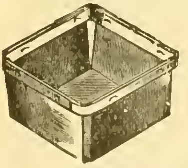
Fruit Packages of All Kinds.

—ALSO—

BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.



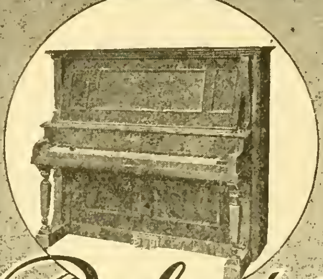
Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

The Ideal Piano



Packard

Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the

Highest Artistic Creation

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. *Catalog and full information free on application.*

THE PACKARD COMPANY
P. O. Box F Fort Wayne, Indiana

DOUBLE YOUR SALARY

Don't spend spare time thinking what you might be if your salary were doubled! *Doing*, not thinking, will make your wish a reality. Our free booklet, "Are Your Hands Tied?" tells you what to do and how to do it. Thousands have already doubled or largely increased their salaries by following our plan. Under our guidance you can do the same. Act today! I. C. S. Textbooks make it easy for those already at work to

Learn By Mail

Mechanical, Steam, Electrical, Civil, Mining, Telephone, and Telegraph Engineering; Shop and Foundry Practice; Mechanical Drawing; Architecture; Plumbing; Sheet-Metal Pattern Drafting; Chemistry; Ornamental Design; Lettering; Bookkeeping; Stenography; English Branches; Teaching; Locomotive Running; Electrutherapeutics; German; Spanish; French.

Circular free. State subject that interests you.

INTERNATIONAL CORRESPONDENCE SCHOOLS,
Box 799, SCRANTON, PA.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

The Best of Everything

THE NORTH-WESTERN LINE

THE through train service of the Chicago & North-Western Railway from Chicago to Omaha, Denver and the Pacific Coast on the west, the Black Hills and Dakotas to the northwest and to Milwaukee, Madison, St. Paul, Minneapolis and Duluth on the north, is as nearly perfect as modern and skillful management can make it.

The Overland Limited, a magnificent electric-lighted train, less than three days Chicago to San Francisco, daily.

The Colorado Special, only two nights to Denver from the Atlantic seaboard. Solid train Chicago to Denver.

The North-Western Limited, an electric lighted daily train between Chicago, St. Paul and Minneapolis.

H. R. McCullough, 3d Vice-President. W. B. Kniskern, Passenger Traffic Manager.
Chicago, Ill.

Economy in California Travel

A double berth in a tourist sleeper, Chicago to San Francisco, costs only $6. The service via the Chicago, Milwaukee & St. Paul and Union Pacific line is thoroughly comfortable and satisfactory.

Thro' tourist sleeper to San Francisco leaves Chicago at 10:25 p.m. daily.

If you're interested write for folder.

F. A. MILLER, Gen. Passenger Agt., Chicago.
E. G. HAYDEN, Traveling Passenger Agent,
217 Williamson Bldg., Cleveland.

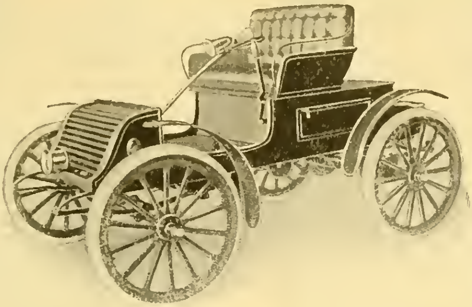
Root's Goods in Central Michigan!

Sold at their prices. Present given with each order amounting to $2 or over. List sent free.

W. D. Soper, Rural Route No. 3, Jackson Michigan.

$750 HYDRO CARBON

Capacity :
100-mile Gasoline-tank.



Capacity :
300-mile Water-tank.

Weight 940 lbs.; seven-horse power actual. Will run at any speed up to 25 miles per hour, and climb any grade up to twenty per cent. For catalog, address

Friedman Automobile Co.,
3 East Van Buren St., Dept. B, Chicago, Illinois.

The Test of Time

not only proves the increasing popularity of plain sections and fence separators, but the superiority of these supers for the production of comb honey over other styles. The use of Root's Hives with plain sections and fence-separator equipment mean

Larger Crop,
Less No. 1 and 2 Grades,
Satisfied Merchant,
Increased Sales,
More Fancy Grade,
Better Price,
Enthusiastic Customers,
Greater Profits.

and a **ready market** the coming season, which is one of the important factors in the building-up of a home market for honey. It is one thing to dispose of a fair grade of honey at a moderate price, but quite another to retain the good-will of the merchant handling your honey. To secure this co-operation and stimulate the trade, great care should be exercised as to the attractiveness of the honey offered. It should not only be "Fancy," but the honey should be well capped, and put up in neat shape. To obtain these results you should use Dovetailed hives and supers equipped with plain sections and fence separators. Insist on Root's make and you will not be disappointed.

The A. I. Root Company, Medina, Ohio.

N. B.—If you are not posted as to where you can buy Root's Goods advantageously, write us. Ask also for catalog of Bee-keepers' Supplies and specimen copy of Gleanings.

APPLE TREES

This spring finds us with an unusually large stock of extra fine young trees. Every tree **guaranteed** on a whole root, free from disease, smooth, vigorous, shapely. We want to supply you this spring from this matchless stock.

Summer Apples.

Yellow Transparent, Red Astrachan, Summer Rambo, Red June, Early Harvest, Golden Sweet, Early Strawberry, and others.

Fall Apples.

Maiden's Blush, Gravenstein, Fall Rambo, Fallawater, Haas, Duchess of Oldenberg and others.

Winter Apples.

Jonathan, King, Limber Twig, Missouri Pippin, Northern Spy, N. W. Greening, R. I. Greening, Rome Beauty, Stark, Scott's Winter, Smith's Cider, Tallman Sweet, Wine Sap, Willow Twig, and every other kind worth planting.

We believe that our spring of 1903 apple stock cannot be equalled anywhere. We pack so there can be no injury in shipping. **Absolutely safe arrival guaranteed** anywhere in the United States.

REMEMBER

we are headquarters for Peach and Kieffer Pear Trees, Strawberry Plants, Asparagus Roots, etc. New spring catalogue mailed free. Write at once for **special apple list.**

HARRISON'S NURSERIES,
Box 53 Berlin, Md.

SEEDS, PLANTS, ROSES,

Bulbs, Vines, Shrubs, Fruit and Ornamental Trees

The best by 49 years test. 1,000 acres, 40 in hardy roses. 44 greenhouses of **Palms, Ferns, Ficus, Geraniums, Everblooming Roses** and other things too numerous to mention, Seeds, Plants, Roses, Etc., by mail postpaid, safe arrival and satisfaction guaranteed. Elegant 168 page catalogue free, send for it and see what values we give for a little money; a number of cheap collections of Seeds, Plants, Trees, Etc., offered which will interest you.

THE STORRS & HARRISON CO.,
Box 174, PAINESVILLE, OHIO.

A WOMAN FLORIST

6

EVERBLOOMING

CARNATIONS

THE GEM SET for 25 Cts.

Mrs. Lawson, largest pink
White Cloud, purest white
Estelle, dazzling scarlet
Armazindy, white and red
Morning Glory, satin pink
Abundance, deep rose

All will bloom this Summer.

Send 25 cents for the above Six Colors of Carnations.

Some Special BARGAINS in Flower Collections

5 Lovely Tea Roses, will bloom all summer -	25 cts.
8 Prize-winning Chrysanthemums, World-beaters,	25 cts.
8 Beautiful Coleus, will make a charming bed,	25 cts.
5 Cannas, all colors, ever blooming - - -	25 cts.
6 Fuchsias, all different. - - - - - -	25 cts.
10 Lovely Gladiolas, the prettiest flower grown,	25 cts.
10 Superb large-flowered Pansy plants - -	25 cts.
12 Pkts. Fower seed, all different. - - -	50 cts.

Any Five Collections for One Dollar.

Guarantee satisfaction. Once a customer, always one.
Catalog FREE.

MISS ELLA V. BAINES, Box 58 Springfield, O.

REPETITION

is the life of advertising—It is also the life of the largest mail-order seed trade in the world—

BURPEE'S!

Were it not for repeat-orders every year from satisfied planters we could not supply the

Best Seeds that Grow

at such moderate prices. We want every one who appreciates quality to write for **Burpee's Farm Annual for 1903.** Long known as "the Leading American Seed Catalogue," it is better now than ever before. An elegant book of 184 pages, with beautiful colored plates and hundreds of illustrations, it tells the plain truth. **Write to-day! Do not delay! It's FREE.**

W. ATLEE BURPEE & CO., Philadelphia

Seed Oats

65c a bu. and up.

The cleanest, heaviest, best yielding oats are Michigan Northern Grown. **Hammond's Nameless, Hammond's English Wonder, Czar of Russia and Michigan Wonder**, the four best varieties. Rust proof, stiff straw, have yielded 220 bu. per acre. Catalog describing these oats and all other farm seeds free on request.

HARRY N. HAMMOND SEED COMPANY, Ltd.
Box 69, Bay City, Mich.

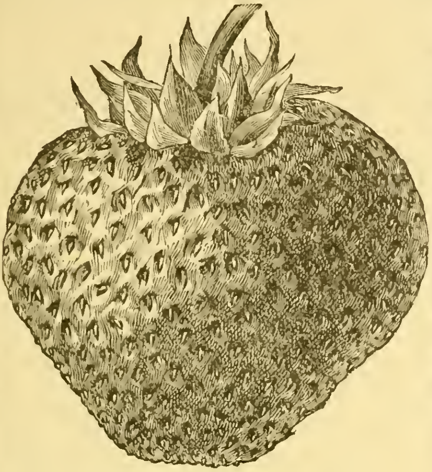
A NEW STRAWBERRY.

MARIE
STRAWBERRIES

Estimated yield 700 bu. per acre. Netted $400.00 per acre for us. Beautiful, round as an orange, large, good quality. 75 other varieties. Many new Raspberries, Blackberries and other fruits, especially some new apples. Our new Catalogue tells all about it. Sent free.

W. N. SCARFF,
New Carlisle, Ohio.

One Cent buys a postal card
which will carry your address for
Great Crops of
Strawberries
and How to Grow Them



The best book on strawberry-growing ever written. It tells how to grow the biggest crops of big berries ever produced. The book is a treatise on **Plant Physiology** and explains how to make plants bear **big berries and lots of them.** The only thoroughbred scientifically grown **strawberry plants** to be had for spring planting. One of them is worth a dozen common scrub plants. They grow **big red berries.** There is **GOLD** in strawberries and bees if you go at it right. The book tells how to dig it out. The book is sent free to all readers of GLEANINGS IN BEE CULTURE. Send your address to me.

R. M. KELLOGG,
Three Rivers, Mich.

NEW
STRAWBERRIES

Strawberry Plants
and Seed Potatoes.
How to Grow Biggest Crops.
Finest Fruit.
DESCRIPTIVE CATALOGUE FREE.
Send for it. Bargains in New Varieties.
FLANSBURGH & PEIRSON,
Leslie, Mich.

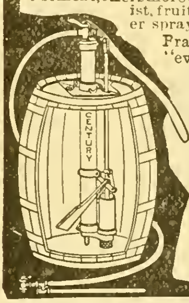
BEST SMALL FRUITS. Standard and improved varieties of Raspberries, Blackberries, Gooseberries, Currants, Grapes, Strawberries, etc. Every plant grown and guaranteed by me. Ship only clean, vigorous, well rooted, fresh dug plants that give results. Write for late catalog.
Allen L. Wood, Wholesale Grower, Rochester N.Y.

210 Kinds for 16c.
It is a fact that Salzer's seeds are found in more gardens and on more farms than any other in America. There is reason for this. We own and operate over 5000 acres for the production of our choice seeds. In order to induce you to try them we make the following unprecedented offer:

For 16 Cents Postpaid
25 sorts wonderful onions,
25 sorts elegant cabbage,
15 sorts magnificent carrots,
25 peerless lettuce varieties,
25 rare luscious radish,
20 splendid beet sorts,
75 gloriously beautiful flower seeds,

in all 210 kinds positively furnishing bushels of charming flowers and lots and lots of choice vegetables, together with our great catalogue telling all about Macaroni Wheat, Billion Dollar Grass, Teosinte, Bromus, Speltz, etc., all for only 16c. in stamps and this notice.

Onion seed at but 60c. a pound.
JOHN A. SALZER SEED CO.,
La Crosse, Wis.



The Century Sprayer
a small cut of which is shown in this advertisement, offers more advantages to the orchardist, fruit grower, etc., than any other spraying outfit on the market.

Brass cylinder, brass valves, "everlasting" fabric plunger packing and the only thoroughly reliable agitator.

Cylinder 2½ ins., stroke 5 ins. Then, too, it sells at a lower price than other good pumps. Send for handsome free catalogue, showing full line of pumps and twenty varieties of sprayers.

THE DEMING CO., Salem, O.
Western Agents—Henion & Hubbell, Chicago, Ill.

LOW RATES WEST

Only $33 Chicago to San Francisco, Los Angeles, Portland Tacoma, Seattle, and many other Pacific Coast points, every day February 15 to April 30, 1903. One-way, second class, colonist rates via Chicago, Milwaukee & St Paul and Union Pacific line. To the Northwest via this route, or via St. Paul. Additional information on request.

F. A. MILLER, Gen. Passenger Agt., Chicago.
E. G. HAYDEN, Traveling Passenger Agent,
217 Williamson Bldg., Cleveland.

To make cows pay, use Sharples Cream Separators. "Business Dairying" and cat. 288 free. W. Chester, Pa.

Free to All Housekeepers

The "1900" Ball-bearing Family Washer Saves Time, Money, and Worry; Most Perfect, Simplest Washer Known; No More Stooping, Rubbing, Wearing-out, or Boiling Clothes.

A FAIR AND SQUARE PROPOSITION

In Order to Prove to the Most Skeptical that the "1900" Ball-bearing Family Washer Is Unquestionably the Greatest Home Labor-saving Machine Ever Invented, We will

SEND YOU ONE ABSOLUTELY FREE

without deposit or advance payment of any kind, **Freight Paid, on 30 Days' Trial.** If you like it you can pay for it in cash or on the installment plan at the end of 30 days. If you don't like it, all you have to do is to ship it back to us **at Our Expense.** You run no risk, no expense, no obligation whatever.

The 1900 Ball-bearing Washer is unquestionably the greatest labor-saving machine ever invented for family use. **Entirely New Principle.** It is simplicity itself. There are no wheels, paddles, rockers, cranks, or complicated machinery. It revolves on **Bicycle Ball-bearings,** making it by far the easiest-running washer on the market. No strength required; a child can operate it.

No more stooping, rubbing, boiling of clothes. Hot water and soap all that is needed. It will wash **large quantities of clothes** (no matter how soiled) **perfectly clean in 6 minutes.** Impossible to injure the most delicate fabrics. Saving in wear and tear of clothes, to say nothing of the saving in soap and materials, pays for machine in a short time. Don't be prejudiced. This is entirely different from and far superior to any other washing-machine ever made.

Read These Convincing Testimonials:

A Day's Wash in Three Hours.

Sherwood, Md., Jan. 15, 1901.

The washer I received from you is the best I ever saw. It will do all you claim for it. I can do the washing in three to four hours, where it took a colored woman a whole day to do it. We have ten boys and three girls, and you can judge from that that we have large washings. Myself and daughter would not part with this machine for twice what it cost. We live on a farm. Mrs. Levi H. Harrison.

Greasy Overalls Washed Clean.

SanFrancisco, Cal., Dec. 25, 1899.

1900 Washer Co. Gentlemen: I received the washing machine in good order on the 15th inst. My wife had saved three weeks' washing to try it. She commenced washing at seven o'clock, and at eleven all the clothes were on the line. It would have taken two days to do all this work the old way; and the washing was done clean. Greasy overalls, which I use in the engine-room, could not have been done nicer in a steam laundry. She would not part with the washer if she could not get another like it, if she was offered $100. Yours truly,

Chas. Blum, Marine Engineer,
1006 Channing Way, West Berkeley Cal.

Fifteen Machinefuls in Four Hours.

Chicago, July 13, 1900.

Last week I started to wash with your 1900 Ball-bearing Washer. A neighbor saw me wash my little boys' waists (which were terribly dirty), and we were both surprised to see there was not a spot left. On Monday we did a big wash of 15 machinefuls, and the work was done in four hours. It is the best machine I ever saw, and I have tried many. It works so easy my little boy can run it.

Mrs. A. H Centner,
636 Diversey Boulevard

It is a Wonder.

Savannah Yacht Club,
Savannah, Ga., Jan. 21, 1901

After a thorough trial of your 1900 Washer on all kinds of washing, I think you have a "wonder" We have a very large washing and have always had two women on Monday, and one to finish on Tuesday. Our washing cost us $10 per month. With your washing-machine, our cook and the yard boy did the washing in four hours, much better than it was done before. Your machine is all that you claim for it.

W. M. Kidwell, Supt.

Costs nothing to try. Sent to any one absolutely free for a trial of 30 days. We pay freight both ways. No money required in advance. Send for book and particulars to

The "1900" Washer Co., = 295 H State Street, = Binghamton, N. Y.

Buy Your Bee-supplies of S. D. Buell!

You can save money. He handles The A. I Root Co.'s Supplies. Send list of goods wanted, and let him quote you prices. Send for catalog.

S. D. Buell, Union City, Mich.

$3.00 Quality Eggs $1.00 per Setting

to every reader of this paper who sends us an order this month 25 varieties of thoroughbred poultry. Every first and second on Buff Leghorns Orpingtons, and others at four shows last fall. Catalog for stamp.

E. R. Philo Poultry Association, Salem, New York.

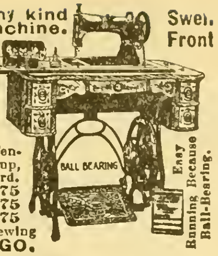
WE WILL SAVE YOU FROM $10 TO $45 on almost any kind or style of machine.
Sold direct from factory saving all salesmen's expenses and dealers or agents exhorbitant profits. Our machines have modern features not possessed by any others. **Ball-Bearing Stand;** finest attachments FREE. **Latest design woodwork,** the stylish **swell front, polished oak.** Guaranteed to be better than machines sold for twice the price. **SHIPPED ON APPROVAL** anywhere in U. S. Guaranteed 20 years.

ARLINGTON GEM $25.00 Regular 5 drawer Drop Head Including all attachments. **$11.25**

ARLINGTON QUEEN Flat Tension and Needle Bar Take-up, same as New Home, Domestic and White. $35.00 Regular 5 Drawer Drop with fine Marquetry Decorations, **$14.75** $45.00 Beautiful 1 Door Desk Cabinet $16.45.

ARLINGTON Highest arm made, Disc Tension. Independent take-up, same as Singer, Wheeler & Wilson and Standard.
$55.00 Regular 5 Drawer Drop Head $17.75
$65.00 Automatic Lift, Drop Cabinet $19.75
$75.00 Beautiful 2 Door Desk Cabinet $28.75

Write for our Catalogue, 64 pages beautifully illustrated. Contains all points about buying Sewing Machines right—FREE. **CASH BUYERS' UNION. Dept. B 245 CHICAGO.**



Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos. are bred for business. Tested queens, $1 50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Carniolans and Italians.

Choice Queens a Specialty.

Having added extensively to our queen-rearing plants in the North and the South we can furnish any number of queens on short notice.

Carniolans. Very prolific, hardy, gentlest bees known. Great comb builders. Sealed combs of a snowy whiteness. A worker on red clover.

Italians. Gentle, prolific, swarm very little, fine workers, and a red-clover strain.

The Carniolan-Italian Cross. A cross giving the combined qualities of each race, are hustling workers, the coming bee for comb honey.

1 untested queen, $1.00; 6 for $5.00; 12 for $9.00. Tested. $1.50. Best breeder, $3.00. Best imported breeder, $5.00. For full colonies, one or two frame nuclei, large orders for queens, send for descriptive price list. Orders booked now will be filled when desired.

F. A. Lockhart & Co., Caldwell, N.Y.

$QUEENS--$BEES--NOW.

A. L. Swinson, Queen-breeder, furnishes best to be had in U. S. **First-handed,** Warranted queens, $1.00. Tested, $1.50. Breeders, $5 to $10 **American Albino Italians,** and **Adels** mated to **Albinos.**

SWINSON & BOARDMAN,
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100 BASSWOOD or LINDEN, $2.00

Prepaid to any address in the U. S. This is the tree that bee-keepers have long wanted. We have a big supply of 6x12 inches, and will bill all orders promptly as above. Easy and fast growers. Basswood blossoms make the most and best honey. Order as many as you want, but not less than 100. Offer good for spring of 1903 only.

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We have a splendid lot of sweet-clover seed which we offer at 11 cents in small lots, or at 10 cents in bulk.

THE SNYDER BEE AND HONEY CO.,
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TREES, VINES, and PLANTS.

Hardy-grown Nursery Stock. Large supply at less than trade prices. **Keiffer and Peach Specialties.** Send list of wants for quotations.

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WINTER IN California.

Sunshine and summer, fruit and flowers all winter long in California. The quick way to get there is via the Chicago, Milwaukee, & St. Paul, and Union Pacific line. Three through trains, Chicago to San Francisco, every day.

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Profitable Potatoes

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Not an inch of ground wasted.
Not a seed withered.
Every row planted full count by hand, two acres and more a day.
Every piece of seed put into **MOIST** soil

$1 Acme Hand Potato Planters

Do all this and more. They make your potato fields profitable. Catalog free.

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WE HEARTILY

recommend Page Fence for the worst breachy stock, and it does just as well for quiet stock.

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FOR SALE.—Forty colonies Italian bees in 8-frame L. bodies; strong colonies and plenty of honey; satisfaction guaranteed; $4.00 each, shipped in April and May. W. E. YODER, Lewisburg, Pa

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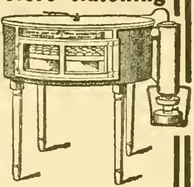
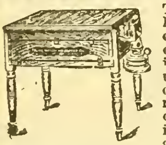


Counting Chicks Before Hatching
is not safe unless you have an
IOWA ROUND INCUBATOR

R. C. Bauerminster, Norwood, Minn., got 493 chicks from 503 eggs. He followed directions, the machine did the work, because it was built on right principles and by good workmen. The **IOWA** has fiber-board case, does not shrink, swell, warp or crack. Regulation and ventilation perfect. Our free book gives more testimonials and full particulars. Everything about incubation free.

IOWA INCUBATOR COMPANY, BOX 197, DES MOINES, IOWA



PER EGG CAPACITY

The Sure Hatch Incubator is a high grade machine throughout, (over 30,000 in use) anyone can operate them, and when it is considered that we pay the freight and that the machines are all larger than rated capacity and are sent on 30 days trial, the egg capacity is the cheapest of any good incubator on the market. Our Free 1903 Catalogue was made to order for the poultry raisers—poultry and egg record tables, etc. A big book full of good things. Address nearest office.

SURE HATCH INCUBATOR COMPANY.
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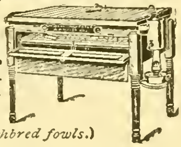

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J. W. Miller's incubator—made by the man who knows. It is really self-regulating.

30 DAYS FREE TRIAL

We get no money until you are perfectly satisfied. Poultry Book Free.

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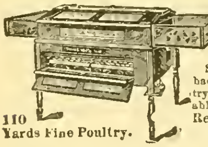

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INCUBATORS and BROODERS.

Satisfaction guaranteed or your money back. Send 10 cents postage for great poultry book just issued, explaining remarkable guarantee under which we sell.

110 Yards Fine Poultry.

Reliable Incubator & Brooder Co.,
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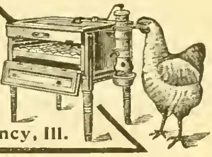

$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

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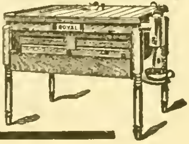

30 Days Free Trial

The Royal Incubator
is so good and works so well that we don't ask you to buy it before you try it. Entirely automatic: certain in results. May we send you one on trial? Catalogue free.

ROYAL INCUBATOR COMPANY,
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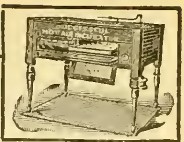

Brings Big Hatches

That's the test of an incubator and that's the record of the

SUCCESSFUL.

SUCCEED WITH A SUCCESSFUL

Don't experiment. Get a time tried and proved incubator. The Successful not only hatches perfectly, but it will last a life-time—does not swell nor shrink. Send 6 cents in stamps to cover actual cost of mailing for Incubator and Poultry Books. Standard Poultry and Poultry Supplies. Books in five languages.

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$9.50 FOR 100 EGG SIZE
200 EGG SIZE $15.00
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THERE IS ONLY ONE BANTAM INCUBATOR
IN PREMIUMS $4500.00 TO OUR PATRONS
AND 30 DAYS TRIAL
SELF REGULATING GUARANTEED
HATCHES EVERY GOOD EGG
BEST ON EARTH
SEND 2 CENTS FOR No 64 CAT. AND PREMIUM LIST
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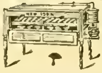

200 EGG INCUBATOR $8

By our new plan you can secure our **NEW IDEA INCUBATOR** at nominal cost. Double Walls, Removable Trays, Nursery Copper Heater, Improved Tank, Safety Lamp, Regulator. We Can Save You Money Write for FREE Circular Address

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My 1903 catalogue. Elegant in illustration, full of practical hints, describes 56 breeds of prize winners. Low prices for birds and eggs. Book postpaid, 10 cents. Calendar for 1903 on cover.

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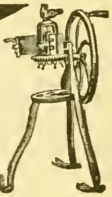

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Nothing equals green cut bone for hens. Any one can cut it with

Mann's Latest Model Bone Cutter.

Open hopper. Automatic feed. **10 Days' Free Trial.** No pay until you're satisfied. If you don't like it, return at our expense. Isn't this better for you than to pay for a machine you never tried? Catl'g free.

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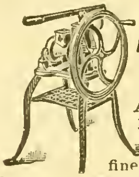

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New Green Bone, Shell and Vegetable Cutter for the Poultryman.

Also Bone Mills for making phosphate and fertilizer at small cost for the farmer, from 1 to 40 horse-power. Farm Feed Mills grind fine, fast and easy. Send for circulars.

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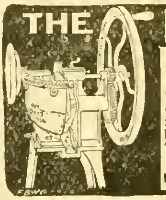

THE HUMPHREY
GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

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Don't pay retail price for carriages or harness. Write for our catalogue and learn about our system of selling direct from factory to customer. Two profits are saved to you. Satisfaction is guaranteed, or you can return the purchase and we will pay freight charges both ways. We have the largest assortment of buggies, surreys, phætons, carriages, and other high grade vehicles, as well as harness and horse accessories, in America. Write for the catalogue to-day.

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IRON AGE IMPLEMENTS

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No. 3 Iron Age Double and Single Wheel Hoe, Hill and Drill Seeder.

Two tools you need now to make this year's profits greater. Write for the new **Iron Age Book**, showing the full line. Full of ways to save work. FREE.

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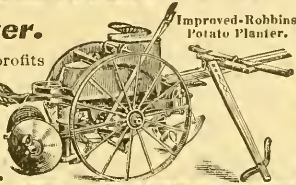

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Seed Corn

$1.00 bu. and up

Michigan Northern Grown is the earliest and produces largest crops. **Hammond's Sixty Day Flint, American Pride, Rare Horse Dent and Thoroughbred White Dent** are the 4 famous varieties today. American Pride made 197 bu. shelled corn per acre. Fifteen other sorts. 100 page catalogue fully describing these wonderful corns sent on request. **HARRY N. HAMMOND SEED COMPANY, Ltd.**
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450,000 TREES

200 varieties. Also **Grapes, Small Fruits** etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **LEWIS ROESCH, Fredonia, N. Y.**

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In natural colors, 12 x 18 inches, for framing, mailed in tube free for 25c. for nine months' trial subscription to **The Feather.** The most beautifully illustrated poultry paper—fowls in natural colors on cover—36 pages, **showing how to make money raising chickens.** Regular price, 50c per year. Satisfaction guaranteed or money refunded.

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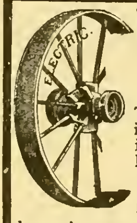
Don't Keep Hens the same old way, while others are getting rich on the new plan. Latest results monthly in gigantic poultry journal. Six mo. trial subscription 10c. for next 30 days. Money back cheerfully if not delighted. Address, **THIS FOR THAT, 719 Star Bldg., CHICAGO.**

BUILD YOUR OWN INCUBATOR,
we sell complete Illustrated plans by which a 200 EGG HOT WATER INCUBATOR can be built for about **$8**
We furnish Lamps, Tanks, Regulators, etc., at cost. Big money building and selling them. Write to-day for particulars and FREE circular "How to Make and Save Money with an Incubator."
Channon, Snow & Co., Dept. 139 Quincy, Ill.



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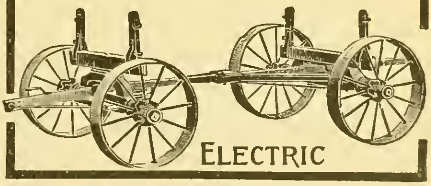
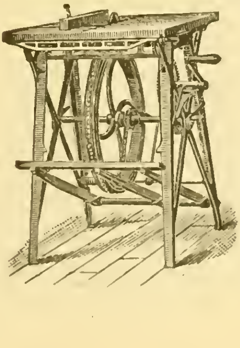
The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our **ELECTRIC STEEL WHEELS** have given a new lease of life to thousands of old wagons. They can be had in any desired height, and any width of tire up to 8 inches. With a set of these wheels you can in a few minutes have either a high or a low down wagon. **The Electric Handy Wagon** is made by skilled workmen, of best selected material—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. Here is the wagon that will save money for you, as it lasts almost forever. Our catalog describing the uses of these wheels and wagons sent free. Write for it.
ELECTRIC WHEEL CO., BOX 95 QUINCY ILLINOIS.





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Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.
Machines on Trial.
Send for illustrated catalog and prices. Address
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Gleanings in Bee Culture

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Devoted to Bees, Honey, and Home Interests.

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SPECIAL NOTICE
Special Notices
By Our Business Manager.

BEESWAX MARKET.

During the past month we have secured over twelve tons of beeswax—the larger portion of his being imported wax from our neighbors in the South. This provides us with a better stock than we have had for some time We shall need a good deal more before the season is past, and trust that our friends who have it to furnish will send it along whenever they accumulate enough for a shipment. We are paying, till further notice, 29 cents cash, 31 in trade, for average; one cent extra for choice yellow wax.

BUSINESS STILL BOOMING.

Although we have shipped out the past month some eighteen carloads, and have gained a little on the orders, we still have unfilled orders on hand for about a dozen cars, some of which are not wanted at once. We are in position to take care of orders with reasonable promptness where shipments are urgently needed. During the month of March an early-order cash discount of 2 per cent may be deducted on all orders accompanied by remittance. The delay to traffic on the railroads is still quite serious, and it is well not to delay your orders too long if you would receive your goods in season for use.

A NAIL-PULLER FOR A QUARTER.

On receiving a shipment of hives or other goods, how often have you felt the need of a good nail-puller with which to open the boxes without breaking or splitting them? Such nail pullers as were effective have been beyond the reach of most people who have a box to open only occasionally. Here is something that works on the same principle as the best nail-puller, and yet is within the reach of every one. It will be worth all it costs in opening up one shipment of hives. It is nickel-plated, weighs only three ounces, and may be carried in the vest-pocket, yet it is strong enough to draw nails up to two inches. The jaws are bedded over the head of the nail; then with the hammer attached, the nail is easily drawn. The head may pull off from some cement-coated nails, and then, of course, you can not get a hold on them. Usually the grip is such as to hold the nail under the head, so it is not likely to come off. Price only 25 cts. each; by mail 30 cents. A heavier size is made that will take 2½-inch nails. Price 35 cents; by mail, 40.

"How to Make Money with Poultry and Incubators" is the title of the new 1903 Poultryman's Guide and Catalog (196 pages) of the Cyphers Incubator Co., of Buffalo, N. Y. It shows photographic views of the largest and most successful poultry plants in the United States, England, Germany, New Zealand and South America, and contains twelve special chapters, each written by an expert, treating of profitable poultry keeping in all its branches, as follows: Starting with Incubators, Handling Chicks in Brooder, Feeding Chicks, Duck Producing on Large Scale, Broiler Raising, Profitable Egg-Farming, Egg and Poultry Combination, Egg and Fruit Farming, Scratching-Shed House Plans, Incubator Cellar and Brooding House Plans, Feeding for Eggs, Standard-Bred Poultry. Most valuable book of the kind ever issued. Write to-day for free copy, asking for book No. **74.** Sixty pages devoted to illustrated description of Cyphers Non-Moisture Incubators, Apartment **Brooders, Poultry** Foods and Clover Products.

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Self
Supplied
Moisture

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please ; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To buy up 50 to 300 colonies of bees.
J. W. WARNER, Box 20, Constance, Ky.

WANTED.—To sell a Barnes machine of latest model cheap. G. F. TUBBS, Annincreek, Pa.

WANTED.—To sell fine Early Michigan seed potatoes $1.00 per bushel.
JOSEPH SOWINSKY, New Era, Mich.

WANTED.—To print your return envelopes, 25 white XXX No. 6, for 10c. THE BEE FARMER,
Woodstown, N. J.

WANTED.—Two men with families, to work on farm and keep bees on shares. Every thing furnished must be o k. T J. PENICK, Williston, Tenn.

WANTED.—To sell 3000 No. 1 Ideal sections, 3⅝x5x1½ with open top and bottoms, for $4.50. Sample free. GEO H DENMAN, Pittsford, Mich.

WANTED.—A hustling, honest, temperance man to work on my farm and to peddle vegetables
H W. HOAR, Rangeley, Me.

WANTED.—To sell extra good catnip seed ; 10 cts. an ounce or 3 ounces for 25 cts.; 1 lb , $1 15.
O. S. HINSDALE, Kendrick, Idaho

WANTED.—To sell farm of 52 acres with improvements, $800; 80 stands of bees at $2. Farm stock, if wanted, J. H. JOHNSON,
Middaghs, Northampton Co., Pa.

WANTED.—Man, either married or single, to work on farm by month or year. Must no use tobacco, drink or swear. Give references, state age and experience.
C. J. BALDRIDGE, Kendaia, Seneca Co , N Y.

WANTED.—To buy a second-hand foot and hand power saw for hive-making; Barnes or Seneca Falls combination machine preferred State condition, make, number, and lowest cash price. Second-hand foundation-mill wanted also; must be cheap and in good condition. J. I CHENOWETH, Albia, Ia.

WANTED.—To sell bees and queens.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To sell or exchange an automatic gauge lathe and one broom-handle lathe. Address
W. S. Ammon, 216 Court St., Reading, Pa.

WANTED.—To sell basswood-trees for spring planting. One to four feet, 10c each; 10, 75c; 100, $5.00.
G. W. Petrie, Fairmont, Minn.

WANTED.—John, some new ginseng seed. Mine are the oldest that can be found.
A. P. Young, Cave City, Ky.

WANTED.—Bee keepers to send 10 cts. for sample paper bags for putting up extracted honey.
R. C. Aikin, Loveland, Colo.

WANTED.—To sell home and apiary in fine tupelo range. If you mean business, address
D. R. Keyes, Wewahitchka, Fla.

WANTED.—To exchange good mandolin for a two-frame honey-extractor.
E. N. Everson, Brilliant, Ohio.

WANTED.—To sell sweet potatoes; choice seed; best varieties. Send for descriptive price list.
L. H. Mahan, Box 143, Terre Haute, Ind.

WANTED.—To exchange full-blood Scotch Collie pups, or coons, for full-blood male St. Bernard, or cash. F. S. Williams, Gelatt, Pa.

WANTED.—A partner to raise bees and honey for sale, or a helper; good business for right party.
Jas. Reed, Camden, N. Y.

WANTED.—To exchange Root's hives for comb honey complete, for B. P. R. and S. C. B. Leghorn chickens. Write me Perry Focht,
R. F. D. No. 1, Wapakoneta, Ohio.

WANTED.—To sell, or exchange for stock 300 colonies of Italian bees in frame hives, with comb-honey super and honey-house; bees at Hotchkiss, Colo. Address S. W. Weeks, Delta, Col.

WANTED.—Farm-hand of good steady habits; no tobacco, whisky, or swearing allowed. Write, stating age and experience, and wages wanted. A good place for the right man.
P. E. Twining, Kipton, Ohio.

WANTED.—To sell a ten-room dwelling with all modern improvements; select neighborhood in the growing city of Bristol, Tenn., 14,000 population; rents at $10.00 a month. Write for circular of this and other property. M. D. Andes,
Real Estate Agent, Bristol, Tenn.

WANTED.—To sell, or exchange for bee-supplies, the encyclopædia Britannica, ninth edition with American revisions and additions; 25 volumes, 8×10½ inches, cloth binding, good condition; cost $50—value it at $15. Ira N. Dunn, Glen Hazel, Pa.

WANTED.—Position, by young man of 21, in apiary; will also do general farm work, and will also take position that requires some education. Have in the past worked on my father's apiaries of 200 colonies. State wages you can pay. Correspondence solicited. Hugo Koehler,
Tisch Mills, Manitowoc Co., Wis.

WANTED.—To sell 50 stocks of Italian bees, 50 patent hives, stock of tools, implements, bee-supplies, and foot-power Barnes saw at bargains; all new. Cause, lost health and use of right hand. Write.
C. S. Ingals, Morenci, Mich.

WANTED.—A man with small family to work a good farm of 40 acres, and an up-to-date apiary of 200 colonies, on shares; or can work the bees without the farm. A very good chance for the right man.
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WANTED.—Farm hand with no bad habits, that wishes to learn bee-keeping. I prefer one that wants steady employment. I keep about 500 colonies, and run for both comb and extracted honey. Please state wages wanted.
W. J. Stahmann, Bruce, Wis.

WANTED.—Comb to render into wax; will pay cash.
A. P. Lawrence, Hickory Corners, Mich.

WANTED.—To exchange Angora goats for any thing useful. Ed. W. Cole & Co., Kenton, Ohio.

WANTED.—Assistant apiarist; state age, experience, and wages desired. Address
C. C. Hawley, Jr., Berthoud, Col.

WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. Knapp, Rochester, Ohio.

WANTED.—To sell thick-top L. frames, in flat, from yellow pine, at $8.00 per 1000, f. o. b.
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WANTED.—To sell a 10-h.p. horizontal engine with upright boiler, with pump, smoke-stack, and all connections, for $125.
J. W. Bittenbender, Knoxville, Iowa.

WANTED.—To sell 10 bbls. White Bliss Triumph potatoes—a little sunburned or green, but all right for seed—not sorted, $2.00 per barrel; will ship in the spring. J. W. Bittenbender, Knoxville, Iowa.

WANTED.—A buyer for a copper liquefying and filling tank, capacity 400 lbs. of honey, practically new; will sell at a bargain. For full particulars, price, etc., address
Ira D. Bartlett, East Jordan, Mich.

WANTED.—A good second-hand Barnes foot-power saw, in exchange for supplies. State condition and price The A. I. Root Co.,
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WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. Tyler Bros., Nicolaus, Cal.

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Twin City Bicycle Co., La Salle, Ill.

WANTED.—A position to care for bees along the Pacific coast. Have had a limited experience; am of Swedish-American descent, 24 years of age. State wages when writing
Herman Rolf, Box 96, Rose Creek, Minn.

WANTED.—To sell or exchange for bees or supplies one McCormick corn-shredder, been used one week, just as good as new; and one McCormick corn-harvester, been used two seasons.
C. L. Pinney, LeMars, Iowa.

WANTED.—For cash, 250 or 300 colonies of bees in ten-frame hives; extra combs also. Prefer those that have been run for extracted honey in the Southern States. State prices on cars and what you have for sale. J. D. Rhoads, Las Animas, Colo.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4¼×4¼ sections; made for Pan-American. For prices, etc., address Orel L. Hershiser,
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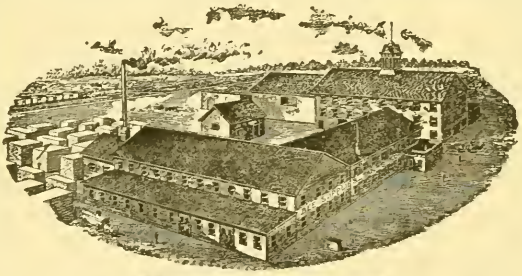

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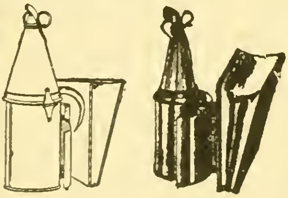

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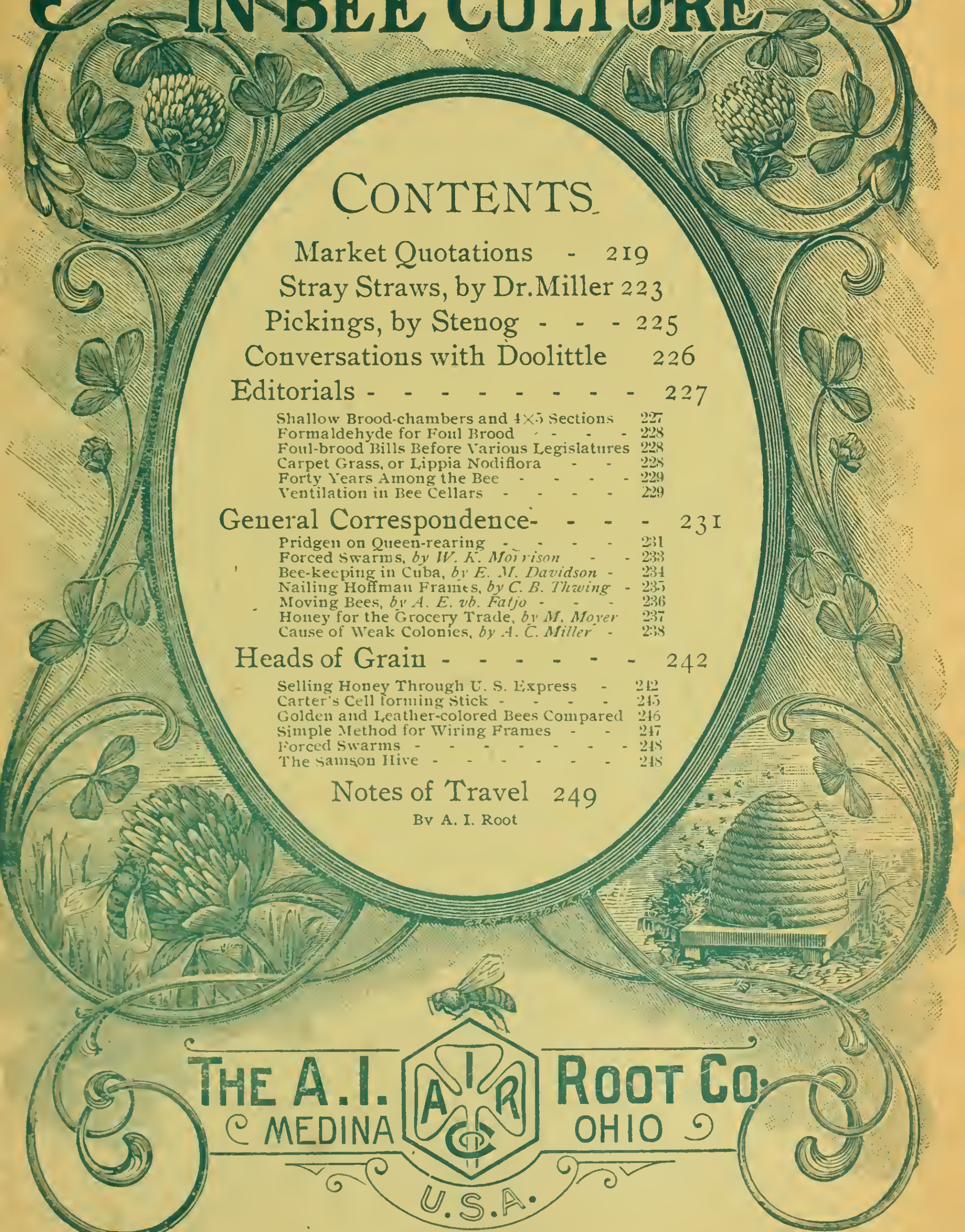
Volume XXXI MARCH 15 1903 Number 6

GLEANINGS IN BEE CULTURE



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By A. I. Root

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Butler County.

Announcement!

We desire to call the attention of all bee-keepers in Washington, British Columbia, and adjacent territory, that we're now the Northwestern agents for

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and are prepared to furnish from stock here, and at other Washington points, any thing required by bee-keepers. Send your specifications early. If we do not have the goods wanted this will enable us to get them in our next carload. Catalogs free.

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Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

New York.—There is a fair demand for white stock at 15 for fancy; No 1, 13@14; amber, 12; with sufficient supply to meet the demand. Dark honey will be cleaned up with very little left. It is selling at about 11. Extracted honey rather weak, and in quantity lots prices are generally shaded. We quote white 7@7½; amber, 6½@7; dark, 6. Beeswax firm and scarce, and at good demand from 30@31 for good average.

Hildreth & Segelken,
Mar. 5. 265-7 Greenwich St., New York City.

Chicago.—The demand for comb honey has been and is of small volume Prices are weak—concessions being made where necessary to effect sales. Fancy white comb is held at 15@16 all other grades of white irregular at 13@14; light amber, 10@12; dark and ambers, 9@10. Extracted clover and basswood, 7@8; other white grades, 6@7; amber, 5½@6½. Beeswax steady at 30.

R. A. Burnett & Co.,
Mar. 7. 199 South Water St., Chicago, Ill.

Buffalo.—There is very little honey in our market, and prices and demand better than usual at this season of the year. Fancy white comb, 15@16; A No 1, 14@15, No. 1, 13½@14; No. 2, 12½@13; No. 3, 12@12½; No. 1 dark, 11@12; No. 2 dark, 10@11. Extracted, white, 7½@8; amber, 7@7½; dark, 6@6½. Beeswax, 28@30. Beeswax 28@30.

W C. Townsend,
Mar. 7. 167 Scott St., Buffalo, N. Y.

New York—The market on comb honey is weak; demand has improved, but not enough to hold up prices. Fancy comb is worth 14@15; No. 1, 11½@13; Extracted, 4½@8½. Beeswax firm at 30@32.

Francis H. Leggett & Co.,
Mar. 9. Franklin and Varick Sts., New York.

Cincinnati.—The demand for extracted honey is good at the following prices: Amber, barrels, 5½@6½, according to quality; white clover, 8@9. Fancy comb honey, 15½@16½. Beeswax strong at 30.

The Fred W. Muth Co.,
Mar. 11. Front & Walnut Sts, Cincinnati, O.

Philadelphia.—The season for comb honey is now nearly over, and very little call with some few sales. There is a large lot held back, this being offered at low prices, and market is a little weak. We quote fancy 14@15; No. 1, 14; amber, 12@13. Extracted fancy white, 7@8. Beeswax, 30, and in good demand. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
Mar. 10. 10 Vine St., Philadelphia, Pa.

Kansas City.—The demand for both comb and extracted honey is better, with receipts light. We quote as follows: Extra fancy, per case of 24 sections, $3 40; strictly No. 1, $3.30; No. 1 amber, $3.00@$3.25; No 2 white and amber, $2.50. Extracted white, per lb., 7; amber, 6@6½. Beeswax, 30.

C. C. Clemons & Co.,
Feb. 21. 306 Grand Ave., Kansas City, Mo.

San Francisco—Honey market as follows: Comb, per lb., 10@13. Extracted, water white, 7; light amber, 6@6½; dark amber, 5. Beeswax, per lb., 28 cts.

Mar. 1. E. H. Schaeffle, Murphys, Cal.

For Sale.—1000 lbs. or more of extracted basswood honey, first quality, at 7½c; also 1000 lbs. or more of amber slightly mixed with honey-dew, at 5c, f o. b. here. Franklin Minnick, Baraboo, Wis.

For Sale.—One barrel partly full (near 400 lbs.) of extracted honey mixed with honey-dew, but light color; good for feeding or factory purposes. Price 5½ cts. per lb. John A. Thornton, Lima. Ill.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

Wanted.—Fancy comb honey. State what kind you have, how put up, and price per pound.

C. M. Scott & Co.,
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For Sale.—We are sold out on alfalfa honey, but have ten 350-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls fancy basswood at 8c; 60-lb. new cans, two in a case, 9c. E. R. Pahl & Co.,
294, 296 Broadway, Milwaukee, Wis.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,
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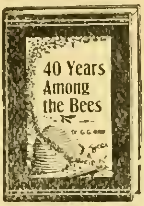

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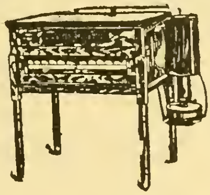

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GLEANINGS IN BEE CULTURE

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Stray Straws

By Dr. C. C. Miller.

Shall I be obliged to get a Spanish dictionary in order to understand any thing A. I. Root says, next time he comes to Marengo?

Basswood-trees are advertised, p. 209, "6×12 inches." Does that mean they're 6 inches high and 12 inches through, or t'other way? [I give it up.—Ed.]

Bro. Doolittle's visitor, p. 186, asks, "Do I understand you to say that there is a lot of queens running about among the bees, at time of swarming?" and the reply is, "No, not that." But *isn't* there a lot running about at time of swarming, in those cases where a lot is found in an after-swarm?

Sweet clover, p. 199, *seems* to be thrown out of the list that includes alfalfa, buckwheat, etc., and classed as fit only to be grown on waste land. Now you quit that, Mr. Editor. You know very well that in some places sweet clover holds up its head with alfalfa, and it is constantly growing in favor. [All right. I will include sweet clover.—Ed.]

Here's the way it is given in a German-French bee journal: At the exposition in St. Louis, in the State of Colorado, in 1904, Mr. Swink, the largest owner of bees in America, will have 5,000,000 bees in 640 hives, and he intends to furnish them the necessary flowers for their harvest. [The editor of the German-French bee journal who compiled this remarkable statement possibly has only a smattering of English, and was unfortunate enough to mix fact and fiction together.—Ed.]

In response to your desire, Mr. Editor, to know what your readers want, let me say that, in the copy of Gleanings that you send me, I'd like a fair proportion of questions and answers. Those who are more experienced than I may afford to skip them, but I never dare to skip one for fear there's something in it that I don't yet know. Then don't forget the pictures—and the footnotes. But if any footnotes get scattered in among these Straws, please let them be respectful. [All right; but if you put chips on your shoulder for me to knock off, I am likely to knock them off.—Ed.]

You ask, Mr. Editor, referring to that tent business, p. 184, "But why shouldn't the workers get into the habit of getting into the tent as well as through the perforated metal?" For the same reason that the workers don't come into the tent where the drones do; because it isn't the *regular* entrance, and is opened only at set times when it is desired to have the virgins and drones fly. [But if it is open only at set times, why shouldn't a queen follow in the wake of the crowd of the workers, wasting her time in trying to get out at the regular entrance? And it is likely, if she fails at this entrance, that she will go to the one at the rear.—Ed.]

J. W. Baldwin says, p. 199, that motherwort is not given in the A B C. Look again, friend Baldwin; it's there, in its proper place, between milk-vetch and mountain laurel. The editor wouldn't answer you whether feeding bees makes them lazy, but you needn't worry about that. You'll have to study up some pretty bad plan of feeding if you succeed in making them lazy. [But it is not true, doctor, that there is danger of feeding, when there is honey in the fields to such an extent as to make the bees actually lazy? that is, they look to the feeder rather than to the field. A. I. R. concluded, from an experiment that he conducted once, that he made one or two good colonies actually lazy right in the height of the honey-flow.—Ed.]

That $921.60 in the treasury of the N. A. B. K. A. has a healthy look. [Whatever may be said of Mr. Secor's course, in the way of criticism, the fact stands out clear and strong that he has carefully husbanded the funds of the bee-keepers put into his hands as a sacred trust. Whenever we have got into litigation of any sort, the fact that there was a thousand dollars in the treasury of the N. B. K. A., and the further fact that there were a thousand members who could, if necessary, pour in another thousand dollars, has had a tremendous influence on the minds of our enemies, the adulterator, and municipal authorities that were disposed to declare bees a nuisance. Mr. Secor has shown another good quality—an ability to keep still when "under fire." Again, we might have had a General Manager who would not have turned over a single cent.—ED.]

THE *Leipziger Bienenzeitung* offers $250 for an absolutely certain test for pure honey. [Any good chemist who has made the analysis of honey a specialty can determine nearly enough for all practical purposes whether honey is adulterated or not. Sometimes when the percentage of sugar syrup is very low it may be difficult to detect it; but the ordinary commercial glucose, such as is used in the United States, at least, is very readily discovered. The *average* chemist who has never had much to do with the analysis of honey, may make a mistake; but one who is at all familiar with the range of the proportions of the different properties or elements that go to make up ordinary honey can very readily show the spurious from the genuine; indeed, the courts of our land accept the statement of a reliable chemist. I do not know why the *Bienenzeitung* should feel under the necessity of offering $250 for an absolutely certain test. If it desires a test that can be used by any bee-keeper, without a knowledge of chemistry, it might just as well make the offer ten times as large, and be perfectly sure of keeping the money.—ED.]

SOMETIMES bee-keepers will agree to market through certain avenues, and then take up with a better offer elsewhere, say you, Mr. Editor, p. 189. I have been under the impression that there was nothing disloyal in a member of a honey exchange selling outside at any time, providing he sold at a higher price. Am I wrong in that? [It all depends on what kind of contract is entered into with the organization of which the bee-keeper is a member. In the Colorado Association, one of the most successful organizations of its kind—perhaps the most so — the bee-keepers buy up a certain amount of stock, and I think the members are supposed to market their product through the organization. But suppose Mr. A, a member of the organization, does sell at a higher price; he does not break down the market, it is true; but should not his fellow-stockholders share in the better price he is able to secure in the slightly increased dividend that will be made later? If the bee-keepers are going to band together for mutual protection, they should be willing to give to the organization for the sake of what it may give them in return—a higher level of prices year after year.—ED.]

REPLYING to the question whether balled queens die from stings or suffocation, Dr. W. G. Sawyer, in *American Bee-keeper*, doubts the suffocation, because he found that, when he immersed drones completely in water for fifteen minutes, nine-tenths of them revived and were as lively as ever, and he thinks queens would not be so different from drones. I suspect he is right. Neither does the stinging theory seem tenable. If bees sting any thing, they're not likely to be two or three hours at it. My guess is starvation. [But haven't I seen stings lodged in the body of a balled queen? Yes, I am sure I have. But the fact that drones can be kept under water for so long a time, and still be revived, is a new fact. Wouldn't that also argue, rather, that the queen can get along for a considerable length of time with very little air? and is it not rather improbable that a ball of bees should be so tight as to exclude fresh supplies of air? If the queen smothers that way, why shouldn't several of the bees die also? We know a queen is more hardy than any of the workers—or at least the fraternity has generally held to that opinion. —ED.]

MR. EDITOR, after reading some things you say on p. 188, I'm just the least bit afraid that some of the beginners may expect that GLEANINGS is to take the place of a text-book. That should never be. If a beginner can't have both a bee-journal and a text-book, let him by all means start with the text-book, and then get GLEANINGS just as soon as he can get the money for it. When he has studied the A B C throughout, he is then in condition to profit by what he reads in GLEANINGS. But GLEANINGS is no place in which to answer which bees lay the eggs, how to form nuclei, nor any other of the things plainly told in the A B C. But in the faithful study of the A B C there will be some things the beginner can not fully understand, and GLEANINGS is the place in which to ask for clearer light; and after the contents of the A B C have been fully mastered there will still be plenty of things coming up all the time to ask questions about, and he should always feel free to ask them in GLEANINGS. [You have hit the nail squarely on the head; Mr. Beginner will, therefore, understand that the suggestion offered by Dr. Miller as to what GLEANINGS should be is a settled policy of its editors and publishers. We have always tried to make our journal supplement the book—not take the place of it.—ED.]

EDITOR HUTCHINSON thinks there ought to be some changes made in the N. B. K. A. constitution, and says: "In fact, one great source, if not *the* source, of most of our late troubles has been from a lack of definiteness in our constitution." Perhaps. Undoubtedly there ought to be some change, but the question is whether it is best to try to make it so definite as to meet every possible emergency that may arise, or to rip out some of its present definiteness and depend a little upon common sense. [I have for some time back held that we have too much constitution. It is impossible to prescribe a set of limitations in advance that will cover all conditions and circumstances that may arise in the future. I would be in favor of having less constitution, with broader powers delegated to a Board of Directors, of men selected for their fitness and wisdom, and who shall not be elected year after year, simply because the membership does not know who else to vote for. I would further favor having a nominating committee composed of three men who are familiar with the capabilities of the best men in the Association. That committee should propose a set of names, and let the membership select from that set. A Board of Directors composed of wise men having broad powers delegated to them could proceed along the lines of common sense and expediency rather than have to run up against an unconstitutional limitation. But the time to talk about this matter is not now, but some three or four months before the next election. I will endeavor to open the question if nobody else does at that time. In the mean time, let us make the best of circumstances, and get down to business.—ED.]

E. F. ATWATER, in *American Bee-keeper*, gives an explanation which is new to me, and is probably correct, as to the difference in the observations of Editor Root and myself concerning brood being built clear to the top-bar. He says: "Dr. Miller's frames are filled with combs built from full sheets of foundation stayed with splints; no sagging there; so brood is much more likely to extend to the top-bars. Root's combs are built from foundation stayed with horizontal wires, consequently sagging all along the top-bars, and bees dislike to rear brood in cells ever so slightly elongated." [When I first read this over it seemed like a reasonable and probable explanation; but I said I would go out into the honey-house and look over some hundreds of our combs, and I did. Well, I did not find one in a hundred that had elongated cells; and in a great majority of the combs the cells within one inch of the top-bar were exactly the same size as those four or five inches down; and yet by holding these combs up to the light I could easily see where the brood had been reared, by the darkened shading. In most cases it was two inches down from the top-bar. There is a little knack in wiring horizontally to prevent sagging of foundation. Wires must not be drawn too tight nor too loose. If you ask me to describe just how to get the right degree of tautness, I can only say this is a matter of feel. But, "allee samee," there is a tendency toward a light-weight foundation in the brood-nest; and ere many years roll by we expect to use foundation as light as super, in which case we shall be compelled to use splints or perpendicular wires, or, better still, perpendicular wires already incorporated in the foundation. The amount of brood in a brood-frame depends largely on the strain of the queen. A little Syrian, Holy Land, Cyprian, or even black blood results in fuller frames of brood, I think. I suppose your bees are not as pure Italians as ours are, and this may account for the partial difference in the brood line.

Pickings from Our Neighbors' Fields

By "Stenog."

Winter's reign at last is o'er ;
He yields to Spring's mild sway ;
Her scepter clothes the fields with green,
And strews with flowers our way.

The French have a very large apicultural literature, each journal seeming to be well supported, and filled with up-to-date articles. Without any attempt to describe them all separately, I give their names and addresses. If I were called on to name any one of them which I should think occupies the most prominent place it is Mr. Ed. Bertrand's *Revue Internationale*, Geneva, Switzerland. Mr. Bertrand's place as an editor and bee-man is such as to make him well known all over Europe. He was intimately associated with the elder Dadant up to the time of the death of the latter; and among the chief contributors to-day is Mr. C. P. Dadant, whose writings constitute a perennial charm for those interested in bees and who can read his articles in the French language.

Here are the names of the most of the other French bee journals:

Rucher Belge, Liege, Belgium. This is a splendid journal every way, both in contents and printing.

L'Abeille, Huy, Belgium. Very progressive.

Bulletin de la Societe d'Apiculture d'Alsace-Lorraine. Mundolsheim, Alsace, Germany. This is German and French.

Bulletin de la Societe de la Somme. Amiens, France.

Revue Eclectique. Sainte-Soline, France.

Gazette Apicole, Montfavet, France.

Progres Apicole. This is edited by Mr. S. Thibaut, of Mont-sur-Marchienne, Belgium. This journal is widely quoted, and occupies a high place.

L'Apiculteur, 28 Rue Serpente, Paris. This is a very old journal—the oldest I know any thing about, and a large one. Before Mr. Hamet's death it was a vigorous opponent of movable frames, favoring the old style of hives. It seems to have lost this peculiarity, and is a thoroughly good journal.

If any of our readers can make use of a bee journal in Danish, Dutch, or Bohemian I should be glad to hear from them.

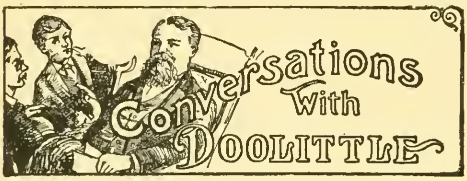
In my list of German journals in the previous issue I overlooked *Bienen-Vater*, one of the best journals published in that tongue; also *Praktischer Wegweiser*, Oranienburg-Berlin, Prussia.

BEE-KEEPERS' REVIEW.

In the issue for February, Mr. R. L. Taylor has an article on foul brood, which is certainly worth all the journal costs a year. It is said of Mr. Taylor that he "holds foul brood at arms' length, and laughs at it;" hence it is likely he understands what he is writing about.

AMERICAN BEE JOURNAL.

Although I have not had much to say about the Old Reliable lately, it is not because it does not deserve it. Mr. York is not relaxing any of his efforts to make his journal indispensable to every bee-keeper. The high moral tone of the journal is very commendable. Mr. Hasty is always at his best here.



UNITING BEES IN SPRING.

"Good morning, Mr. Doolittle. Nice morning for the first of March."

"Yes, this is a nice morning, Mr. Smith. Soon be time for active work with the bees again. Think the few I have out may possibly fly a little before night. They will if it keeps still and clear as it is at present."

"The most of my colonies are coming out weak, I fear, and I came over to have a little chat with you about them. What shall I do to get the most comb honey and also a little increase?"

"Had you asked me this question some years ago I should have said, 'Unite these weak colonies as soon as possible in the spring;' but from later experience I will now say, leave each colony in its own hive till June."

"What has caused you to change your mind?"

"Later experience has proven to me that, where two or more colonies are so weak that they will not live till summer, if left in their own hive without reinforcing, they will not live through till summer if united, no matter if as many as half a dozen such colonies are put together. And I am not alone in thus thinking, for my experience has been the same as that of nearly all of those who have tried the same thing and reported in the matter."

"Deciding that it is not best to unite weak colonies in early spring, what shall be done with them so I can secure comb honey from them?"

"After trying every thing recommended in our different books and papers, and not being pleased with any, I finally worked out the following after much study and practice. All colonies which are considered too weak to do good business alone are looked over, about the time pollen comes in freely from elm and soft maple, and each shut on as many combs as they have brood in, by means of a nicely adjusted division-board, so that the heat of the little colony may be economized as much as possible; and, also, seeing that each has the necessary amount of honey in these combs, or within easy reach, to last them at least three weeks."

"Why is it necessary to have so much food on hand?"

"If we would have brood-rearing go on rapidly in any colony in early spring, and especially in weak colonies, the bees must not feel poor in honey, nor have any desire to economize what they have. Such weak colonies can send only a few bees to the field for nectar, even when the flowers are yielding plentifully; hence, if we would make the most of our reduced colonies we must give them so much food that they are willing to use it extravagantly."

"How long should the colonies be kept shut up this way?"

"These colonies are to be kept shut up on these combs till they have filled them with brood clear down to the bottom corners, before more combs are added."

"Why is this necessary?"

"Because breeding will go on faster with the heat, and cluster kept in compact shape, than it would if both were spread out over more combs. In no case do we allow more than half the number of combs we use in our hives; and if any colony in early spring has brood in more than one-half of the combs, the same colony is good enough to take care of itself without confining it with division-boards."

"When these combs are all filled with brood, what then?"

"Then the stronger of these has a frame taken from it, taking the one having the most nearly mature brood in it, this frame being given to one of the next weaker colonies, or, say, to one which lacks one frame of having half that the hive will contain."

"Why don't you give this to the weakest?"

"That is the question I used to ask; but don't make this mistake, which many do, of giving this frame of brood to the very weakest, hoping to get it ahead faster. The answering of the question is this: The weather has not yet become steadily warm enough so but there is danger of losing the brood by chilling, as well as injuring the brood they may already have, should a cold spell occur, as I did several times while I was experimenting. By giving it to a colony nearly as strong as was the one from which it was taken, both are benefited, and both can furnish brood to another colony which is only a little weaker than the second, in a week or so. I think you see this part now."

"Yes, I do understand. But what about the colony from which you took the brood?"

"I now give this a comb quite well filled with honey, which is set in the place of the comb of brood taken. This stimulates this colony to greater activity, and causes the queen to fill this comb with eggs almost immediately, thus turning the honey into brood very rapidly. If the honey is sealed, the cappings to the cells should be broken, so as to cause the bees to remove it at once. This is best done by passing a knife flatwise over it, bearing on enough so as to mash down the sealing to the cells."

"What do you do next?"

"I keep working the brood from the very strongest down, step by step, as the bees advance and the season progresses, till the time the weakest colony (one having, say, only two combs filled with brood by this time) can take brood enough, without danger of chilling, to make it of equal strength with all."

"You now have all of the weakest colonies, which were shut up with division-boards, with five frames of brood—that is, supposing that your hive holds nine combs."

"Yes; and having them thus we are ready to unite, which should be done about two weeks before the honey-harvest comes, that the best results may be obtained."

"Please explain minutely about this uniting, so I may fully comprehend how it is done."

"To unite, go to No. 1 and look over the combs till you find the one the queen is on, when you will set it, queen, bees, and all, out of the hive, so as to make sure that you do not get the queen where you do not wish her, when you will take the rest of the combs, bees and all, to hive No. 2. After spreading out the combs in this hive, set those brought from No. 1 in each alternate space made by spreading the combs in No. 2, and close the hive."

"Why not set the combs in all together? It would be less work."

"The alternating of the frames is so that the bees will be all mixed up, and, thus mixed, they never quarrel, as each bee that touches another is a stranger. Bees often quarrel, and a lot are killed where no precautions are taken."

"Thank you for telling me this. Now what next?"

"The colonies are now allowed to stand thus for a few days till they are strong enough to enter the sections, when they are to be put on; and if your experience proves any thing like mine you will have a colony which will give as much comb honey as would that colony which was called 'the very best you ever had in the spring.' In this way you will have half as many colonies in excellent condition to work in the sections as you had weak colonies in the spring; and if the season is at all good, you will secure a good yield of comb honey; while, had you united in the early spring, or tried to work each one separately, little if any surplus would have been the result, according to my experience."

"How about any increase?"

"These united colonies will be nearly as likely to increase by swarming as other colonies considered good in the spring. If you wish more increase than this, the comb with brood, bees, and queen, which are to be put back into hive No. 1, together with an empty frame and one partly filled with honey, can be built up to a fair-sized colony for wintering. This little colony will build straight worker comb for some time; and as soon as it ceases to do this, take the worker combs built by another colony just like it, and put them with No. 1 till the hive is full, and you have as nice a colony as you can get in any other way."

Editorial
By E.R. Root.

SIXTEEN extra pages this time.

THERE have been a number of good rains in California so far, but I am told, by those who know, that there have not been enough to insure a honey crop.

IT has been very warm for the last week or so. I have been expecting the bees under the machine-shop to begin to "scold." Notwithstanding it is quite warm in their compartment, they are as quiet and peaceable as I ever saw them. But there are not so many bees in the cellar this spring as usual.

I HEREBY acknowledge my thanks to those who have so kindly written me regarding the general subject-matter of GLEANINGS. And, dear friends, while you are telling about the things you like, do not hesitate to speak about the things you don't like. A little honest criticism is often more helpful than praise.

SHALLOW BROOD-CHAMBERS AND THE 4×5 SECTIONS.

IN the *American Bee Journal* for March 12, Mr. R. C. Aikin, of Loveland, Col, advocates an elastic double-brood-chamber hive suitable for accommodating 4×5 sections. It is surprising how many of the progressive bee-keepers are turning their thoughts in that direction. At the last Chicago Northwestern, 4×5 sections received quite a favorable mention. As time goes on, it comes more and more into prominence. It started first in the East, and is now gradually working westward. It was Capt. J. E. Hetherington who first introduced this section, or what was practically the same thing, 3⅞×5, I think, at the Centennial at Philadelphia in 1876.

FORMALDEHYDE AS A CURE FOR FOUL BROOD.

Some two or three issues ago, Mr. Weber, of Cincinnati, told of a very interesting and satisfactory experiment showing how he thoroughly disinfected combs affected with foul brood. At that time I requested him to keep us posted in regard to his further experiments. In a letter just received, he writes:

> *Mr. Root:*—Fulfilling my promise made you some time ago, to inform you of any future developments regarding the cure of foul brood by means of formalin gas, I now hand you the final report of Prof. Guyer, of the University of Cincinnati. The combs mentioned in his report were sent to me to experiment with, by friend bee-keepers. After fumigating them I sent them to the professor, with the request that he endeavor to find signs of life; but, as he says, he could not. Following is his report:
>
> Seventy-five tests for foul brood in bee-comb. Tests were as follows: 40 tests on comb which had been subjected to formaldehyde-culture, medium-agar at 37°C; 10 tests on comb containing honey treated as above; 15 tests on comb as above culture, medium boriellon at 37°C; 10 tests on comb (foul brood) not treated with formaldehyde. *Bacillus alvei* (germ of foul brood) was found in the comb *not subjected* to formaldehyde; none was found in the combs which *had been treated* with formaldehyde.
>
> This establishes beyond a doubt that formalin gas is a sure cure for foul brood; and I hope that bee-keepers who are unfortunate enough to have colonies afflicted with this disease will give the new cure a trial. I will cheerfully furnish directions, etc., to any one upon request. C. H. W. Weber.
>
> Cincinnati, Ohio.

I do not feel so certain myself that formalin gas is an absolutely sure cure; but the experiments thus far conducted by Mr. Weber give us great reason for hoping that we have something here of more than ordinary value. *If* we can treat diseased combs by so simple a plan as this, we can wipe foul brood out of a yard with very little expense or trouble. Yes, by all means, Mr. Weber, tell us the exact process by which you succeed in disinfecting the combs above mentioned. If you will furnish us the directions, it will save you writing, perhaps, hundreds of letters.

FOUL-BROOD BILLS BEFORE THE VARIOUS STATE LEGISLATURES.

Foul-brood bills are now in the hoppers of several of our States and Territories. Our bee-keeping friends are hereby notified that it will take an unusual amount of pressure to get the bills through both Houses, as there is always some Senator and Representative who has some pet measure of his own that he desires to have put forward; and when there is a lot of such fellows, each with a pet measure, a foul-brood bill is liable to go by default simply because it is crowded out. A foul-brood bill is now before the legislature of Texas which requires the owners of bees to report in case of foul brood, or other contagious diseases, to the State Entomologist. The measure is weak, it seems to me, because it provides no penalty on the owner of the bees for not complying with the order. But the entomologist may burn the bees.

There is another foul-brood bill before the Maine and Illinois State Legislatures, and one has lately passed in California, and is now a law. Keep up the pressure all along the line.

CARPET GRASS, OR LIPPIA NODIFLORA.

One of our correspondents, Mr. H. M. Jameson, of Corona, Cal., calls our attention to the fact that Bulletin No. 45, issued by the Agricultural Experiment Station of Arizona, published at Tucson, has something to say about this wonderful honey-plant; but, strangely enough, it says nothing about the fact that it yields honey; but it gives prominence to the fact of its making a good binder to the soil; that it is found on both hemispheres, and extends north from the South American tropics to Central America, Mexico, and into California, Texas, and the South-Atlantic States. Prof. Thornber, the writer, says, "Recent observations indicate that *Lippia nodiflora* can maintain a continuous layer of green, with a less amount of water, than any other desirable plant in our borders." It is not a forage-plant, he explains, as "grazing animals entertain a dislike for it;" and for this reason it is all the more valuable as a sand and soil binder. In sandy regions, with a limited amount of water, or in the case of embankments where it is desired to hold them together, and not let the water run over the banks, on cultivated lands, it has no equal. It can be propagated very readily from cuttings.

In the region of Nicolaus, Cal., as I have before explained, it is one of the most valuable honey-plants known. The gold-washings in that vicinity have destroyed the soil, killing out alfalfa; but along the dikes or embankments to prevent the further overflow of the river, destroying more land, this beautiful carpet grass forms a soft, thick, bedlike mat. It is springy to the feet; and when one lies down on it he almost feels as if he were buoyed up by a brand-new hair mattress. I was fortunate enough to be present when bees were working on it. The tiny blossoms were covered by them. Not only do bees work on it, but they carry in large quantities of honey—tons of it—yes, carloads of it—of a beautifully flavored thick white honey that will rank with any mountain sage in any part of California.

This carpet grass, or *Lippia nodiflora*, would be a most wonderful acquisition to Florida, if once introduced; and this leads me to say that the Arizona Agricultural Station, Tucson, "will endeavor to furnish *Lippia nodiflora* in limited quantities to all who may apply. When received it should be planted immediately in rows one or two feet apart, in well-watered and well-prepared soil." After the plant is once well started, cuttings can be taken off, and it can be further propagated. When a firm stand has been secured, they may then be transplanted to washes and other similar situations where it may be desired to hold the soil together.

If the plant is valuable as a soil-binder, the bee-keepers all over the world should make an effort to get it introduced in their localities, not necessarily because it is a soil-binder, but because of the great amount of fine honey; and when once introduced it will stick like many other creeping plants of its kind.

Further particulars can probably be gathered from Prof. J. J. Thornber, of the Department of Botany, of that Territory. Whether or not bee-keepers and others outside of Arizona would be furnished these cuttings free I can not say; but probably some will be supplied to all who apply for it, at a nominal cost.

"FORTY YEARS AMONG THE BEES."

In our last issue I promised to tell you more about this new and interesting book by Dr. C. C. Miller. I have read page after page of it; and the more I read, the more I am convinced that it is one of the most practical books that was ever written. There are 101—yes, 1001—little kinks, little tricks of the trade, little ideas, and big ones too, which, while they may be old to *some* of the veterans, I am of the opinion will prove to be new and useful to the majority of them. The doctor has crowded into these 330 pages his ripest experience; and not only that, he has drawn from the ideas of others so that we have the very latest and best in the way of practical information from one who has actually spent "forty years among the bees."

In our previous issue I spoke of the fact that the writers of text-books, and editors of papers, often assume too much knowledge on the part of the one they are supposed to instruct. Our author, while he is not writing for beginners, does not assume any thing of the sort. He describes just what *he* does in the bee-yard, and *how* he does it. Even in the simple matter of catching a queen, he goes into full details, illustrating by photograph each step in the operation. And that reminds me that, some four or five years ago, I told the doctor he ought to get one of those little pocket kodaks; that one who wrote as much as he did ought to be able once in a while to give a picture of the *modus operandi*. The next thing I knew he had bought him a little camera, and was snapping it on every thing right and left. Why, you just ought to see how he illustrates in his books his various manipulations with that handy little instrument. Take, for example, his method of getting bees off the combs, as shown in Fig. 26, p. 83. Without the book itself I can not describe to you exactly the vigorous shake or "shook" he gives a comb; but with his left hand he grabs the end-bar securely; then with his right hand, or fist, rather, he comes down on the back of his left hand, holding the frame, with a quick sharp blow. Why, you can actually see Dr. Miller's chubby fist knocking every bee *clean off*. Did you ever try to shake a comb with two hands, giving it the most vigorous kind of "shook," but it would not "shook" *all* the bees off unless they were black ones? Well, take Dr. Miller's plan, and, presto! every bee will drop *instanter*. In Fig. 28 he shows the art of sweeping bees off the comb; in Fig. 31 how he stays up his foundation with wooden splints, and a good plan it is too.

Again, we get a glimpse of the doctor holding his Miller feeder, just as if he were describing its merits before a convention. Another view that is most interesting is the drive leading up to the Miller mansion. On one side of the road is a row of beautiful lindens, making the view from a purely artistic point very attractive. Fig. 29 shows the sealed brood of laying workers; and it is the best representation in printer's ink of such brood I have ever seen. Fig. 60 is a remarkable view of a section filled with foundation — one large top starter and one narrow bottom starter.

In Fig. 61 we see the doctor in his light summer clothing, trimming foundation up for sections. Yes, we can almost see the sweat rolling down his good-natured face. In Fig. 83 we are forcibly reminded of the fact that the doctor believes in cool dress for summer work among the bees. One thickness of clothing, bee-veil, and hat, shoes and stockings, complete his regalia, and he looks very neat and comfortable standing up among his favorite rose-bushes. In Fig. 84, again, we see Miss Wilson, his sister-in-law, in her very neat bee-suit. Well, I might go on and describe each of the 101 pictures that are so interesting and also instructive.

Yes, the book is full of good things—packed full of them, and I question very much whether *any* progressive bee-keeper, beginner or veteran, can afford not to read this book clear through. You may say you have read the doctor's writings for years. Granted. But you will find that there are many little kinks that he describes in this book, that he has never put on the pages of a bee-journal—not because he was not willing to impart what he knew; but because, when he sat down to write a book, one thing after another suggested itself until he unfolded a new story that is as good as a story and far more profitable.

The price of this book is $1.00, postpaid. We will club it with GLEANINGS, both for $1 75.

VENTILATION IN BEE-CELLARS; HIGH TEMPERATURE; MESSRS. DOOLITTLE'S AND BARBER'S BEE-CELLARS.

In the *Bee-keepers' Review* for February appears an article from Ira Barber on this subject. Mr. Barber has been an advocate of high temperature in bee-cellars, and has insisted that one of the chief requirements for successful wintering is to keep out supplies of fresh air from the outside. From that article I make several extracts which will speak for themselves:

> When I was in the habit of airing my bees in winter quarters, they did all of their roaring in the cellar; but when they got to their stands in the spring there was no roar left, for there would not be enough bees left to get up a good respectable roar. After I learned that bees would winter nicely with what air was in the cellar, and what naturally finds its way there, I found my bees did their roaring on the wing; and 75 or 80 per cent of them were ready for the sections when sent out. * * * * * *
>
> I should like to have Dr. Miller, and several others who are in the habit of airing their bees, agree to test this way of wintering, and see for themselves how strong and healthy their bees will come out. Don't be alarmed if they do roar, for they are always happy, as a rule, when they roar the loudest. * * *
>
> I have wintered them so hot they could not stay in the hives, but would be all in a mass together, yet they came out the strongest lot I ever saw. No fresh air was allowed to reach them in that condition.
>
> In case a man has only a few colonies they will winter fairly well in almost any cellar; and, of course, would not raise the temperature of the cellar so as to require any special attention; if it did not freeze, the bees would be all right.
>
> It is where large numbers are kept together, that fresh air is so demoralizing to them.

Then a little further on, referring to myself, he says:

> I hope that if E. R. Root comes up into this State next summer he will come on to this locality, where some of the largest bee-keepers of the State are to be found, and where all use large hives, and where all winter the bees in cellars as I have described.

If circumstances had been so I could have gotten away, I certainly would have taken a run up to Mr. Barber's cellar, and incidentally stopped off to see Doolittle's. I will try to do so next winter.

Our own experience shows that the bees in a cellar without ventilation, especially where the temperature can not be controlled, is disastrous to the bees. They roar, fly out on the cellar bottom, and die in large numbers; and roaring with us seems to presage no good.

Last year we had something over 200 colonies in one of the compartments of our shop cellar. On the floor above there was heavy machinery in motion, with the occasional dropping of heavy castings, and yet the bees wintered well, and are now doing so again this winter.

In February, of last year, when it began to warm up outside, the temperature in the cellar began to rise. The bees became uneasy, flew out on the cellar bottom, and it was evident that the loss would be considerable. We picked out one warm day, and set a part of the bees out for a flight. After a good cleansing they were returned toward night. That lot of the bees became immediately quiet, but the other portion roared as before. These were set out on another day, and returned, when they also ceased their roaring. Previous to this when we found the bees would become uneasy we could quiet them down by giving them ventilation at night, closing the doors before morning. This had the effect of neither increasing nor decreasing the temperature; but *it did purify the air.*

This winter we put in only 40 colonies where formerly we had 200; and at this date, March 10, there are not enough dead bees on the floor to fill a two-quart pan; and those that are on the floor are as dry as though they had been dead for some time. We have not had to ventilate, for the simple reason that the compartment is large for the number of bees confined; and it may not be necessary to give them a winter flight.

Now, my own theory of the matter is this: That a lack of pure air causes the bees to become uneasy and hence active. They consume their stores, as a matter of course clogging the intestines. This makes them *still more uneasy.* When they are restless from this cause, nothing but a flight will quiet them; but when they are restless from want of pure air, a supply of it makes them immediately contented and quiet.

The accompanying letter, received from one of our correspondents, you will notice is along the same line:

> I wish to add my testimony in regard to ventilating a bee cellar, and in taking bees out for a flight and returning them to the cellar. I use a part of my house-cellar partitioned off with matched boards. The temperature keeps between 38 and 41 degrees, with but little variation; air is rather damp, but I have a cement floor, and cellar is mouse-proof.
>
> The winter of 1901 being the first I had tried, as I was afraid the cellar was too cold and damp, I put six colonies in for experiment. In March they were making more noise than earlier in the winter, causing me much anxiety; so when we had a warm day about the middle of the month, I set them out. They had a good fly, cleaned the hives of dead bees, etc.; were carried back in the evening, and were very quiet till they were set out for good a month later.
>
> From what I have read since, I do not think they had become so uneasy as to cause a veteran to worry; but I think it did them good, for afterward during the whole month they were very quiet—as quiet as when first put in, and all came out well in the spring.
>
> This winter I have eleven colonies in the cellar; have taken more pains to ventilate, and up to the present time (Feb. 22) they are very quiet—more so than those were last year. I have 46 colonies out of doors, packed in planer-shavings. **Chas. S. Blake.**
>
> Ashby, Mass., Feb. 22.

I do not presume to contradict so good an authority as Mr. Doolittle or Mr. Barber; but I firmly believe that, in the average cellar, and with the average bee-keeper, he will do better to ventilate occasionally, and perhaps set the bees out some warm day for a flight. A plan of procedure that will work well with experts like Mr. Doolittle or Mr. Barber might prove disastrous with the average bee-keeper. Mr. Doolittle has a cellar that will maintain the temperature absolutely within half a degree. This makes, no doubt, a modifying condition, rendering it unnecessary for him to give his bees any other ventilation than what would percolate through the cellar doors or walls. The absolutely uniform temperature keeps the bees quiet, or in a state of quiet and sleep, where the activity, and consumption of stores, are kept down to the lowest point possible; hence little ventilation is needed. But now comes our friend Mr. Barber, insisting that temperature is not essential, and that they must have no fresh air.

Another winter, if my health and time will permit, I hope to see that cellar, to determine, if possible, why his experience and ours should be so diametrically opposite to each other.

GENERAL
CORRESPONDENCE.

PRIDGEN ON QUEEN-REARING.

Pridgen's Queen-rearing Tenement Hive; the Detail of Its Construction.

BY W. A. PRIDGEN.

[Some time ago, as our readers will remember, Mr. W. H. Pridgen began a series of articles detailing his system of queen-rearing which had attracted some attention in the bee-journals. In the mean time, lack of time, and a desire on his part to test some new devices which he thought might prove superior to those he had been using, induced him to drop the matter for the time being. He has since had an opportunity to test these new things, and has now placed in our hands the manuscript to complete the entire series. The initial article of the new series is begun with this issue.

It will be noted that he uses a sort of queen-rearing tenement hive of special design one that stands up on legs at a convenient working distance. In fact, this whole hive is so constructed as to enable him to throw one or more brood-nests together; to change the entrance from front to rear; to unite, and perform many necessary operations for the rearing of queens. In order to understand the description the reader should first study all the engravings, getting as fair an idea as possible of the detail of the hive before he takes up the general description. Without any preliminaries, Mr. Pridgen plunges into his subject as follows:]

This hive is especially constructed to overcome the perplexing manipulations necessary with ordinary hives in preparing bees for cell-building, to accept cups, etc. It has been in practical use for two seasons, and meets all of the requirements under all conditions. It can be used as one mammoth hive of six times the ordinary size, and contains anywhere from one to six virgin or laying queens, or some of both; or in a few minutes it can be changed to any desired number of distinct hives up to six, and each contain a normal colony of bees.

Any portion made queenless can be worked as a queenless colony, or communication can be given through queen-excluding zinc to an adjoining apartment containing a queen, thus giving one complete control of the situation.

A study of the illustrations, all of which are of the same hive, will give one a pretty correct idea of its construction, and better enable him to understand the cause and effect of the different manipulations.

As shown in Fig. 1, with every thing intact it forms six distinct hives, with no communication from one to another, in which the bees winter better than in ordinary single-walled hives, as each colony is benefited more or less by the warmth of the others. When the time arrives to commence queen-rearing operations, instead of drawing brood and bees from other colonies to prepare one over an excluder and laying queen, in the ordinary way, it is only necessary to remove a queen and work the bees as queenless, or give communication to an adjoining apartment, and work them as is the case over an excluder.

In this way queens can be removed, and communication given from one apartment to another, according to the wishes of the operator, until all but one or two queens are removed, and communication is given from one apartment to another throughout. When this stage is reached, three or four batches of cells in different stages of development can be kept in the hive all the time.

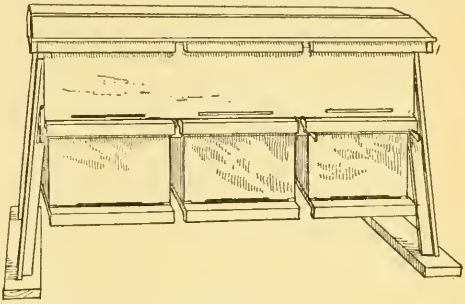


FIG. 1.

Each apartment has two entrances *at each end*, the hive being alike on both sides, with only a sheet of zinc between them, one being below and the other immediately above it, all of which are closed, except those actually needed, by means of plugs cut to fit them.

In this way drones or queens may be allowed to fly from certain apartments, or prevent their flying at will, besides being able to change entrances from one end to another of certain apartments from time to time, for reasons that will present themselves.

When arranged for winter, the center apartment in top tier, and two end ones in bottom tier, are given entrances on one side, and the order reversed for the other three on the opposite side, which gives ample room between them to prevent the mixing and fighting of the bees after they have been separated in the fall and become distinct colonies.

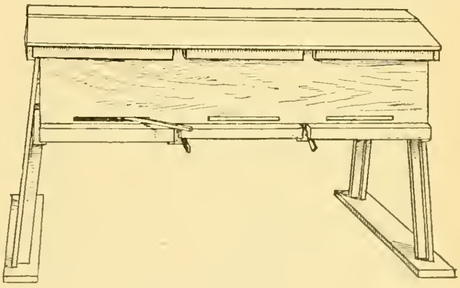


FIG. 2.

In making the test, the idea was to carry the experiment far enough to see if a number of queens could be worked with communication from one apartment to another, by having two excluders (with at least a bee-space between them) at each division, and nothing has transpired to prove that a greater number than has yet been tried would not work in perfect harmony under these conditions, though what effect an insufficient supply of stores might have is not known.

To make a perfect queen-rearing hive, which is the main idea in the one herewith illustrated, the bottom hives, as shown in Fig. 1, are not at all essential. They only serve the purpose of furnishing more apartments, while it would be just as easy to build them all side by side, as shown in Fig. 2, and thus be able to get at the inside by simply removing the covers instead of having to slide them out as drawers, as shown in Fig. 3.

Fig. 2 shows the hive with these left off, the covers to these bottom hives being used as bottom-boards for the top chambers.

As will be seen in Fig. 3, this is divided into three apartments by two tight-fitting division-boards at each partition, with a space of ¾ inch between them, from within two inches of the bottom up.

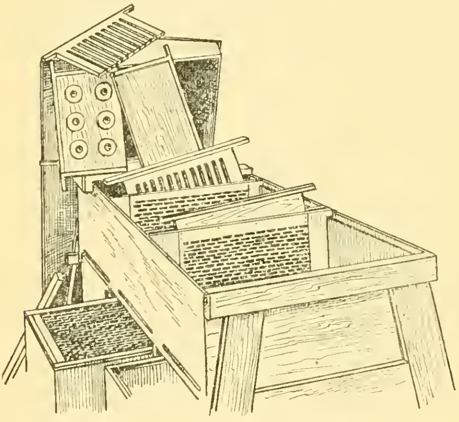


FIG. 3.

The boards on which the bottom hives are suspended extend up between these division-boards two inches, and all are securely nailed. They also extend below three inches, and have small strips nailed to the lower edges on which corresponding strips nailed to the sides, at the tops of the hives, shown suspended in Fig. 1, rest while being inserted or withdrawn, as an ordinary money-drawer found in the stores, except that they are not made close-fitting up and down, but, instead, there is a space of 1½ inches between in which to add queen-excluders or solid boards, as the case may require, between the upper and lower stories, and still admit of some wedging-up.

The two end-boards that support the lower hives are nailed to the ends of the main hive, which can be seen in the picture; and, while only two wedges are shown, still it takes four to each hive suspended (one at each corner), and whether or not there is an excluder placed between to double the excluders between upper and lower stores (there being one made fast in the bottom of each chamber), or a solid board to cut off communication be placed between, still there must be at least a half-inch additional space allowed for wedging up, as close-fitting slides will not work well when gummed with propolis, saying nothing of the certainty of crushing bees by their use.

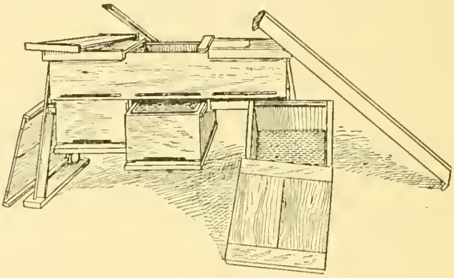


FIG. 4.

When the wedges are withdrawn at one end of a chamber it is allowed to settle slowly without a snap or sudden jar, which, when repeated at the other end, allows the rests or flanges to come together, and the hive is ready for withdrawal endwise, which is easily done without crushing a bee.

When it is ready to be returned, simply slide it under and wedge it up to a tight fit.

Fig. 4 shows one bottom hive wedged up without a cover or excluder; another partly withdrawn with an excluder over it, while the third one is withdrawn and shows the queen-excluder in the bottom, which is a bee-space above the main bottom, both being securely nailed. It also shows covers to the different upper apartments, one being removed, as well as the narrow strips that fit between them, and cover the spaces between the double partitions shown in Fig. 3.

By removing these narrow covers, the different division-boards, etc., shown in Fig. 3 can be removed or adjusted without opening a single chamber, one of which is shown elevated while the other is in place.

As elsewhere referred to, the partitions as shown in Fig. 3 are double walls with a ¾-inch space between except within two inches of the bottom, where they come into contact with and are nailed to the boards to which the bottom hives are suspended. The openings in the partitions forming the passages from one chamber to another are 5×10 inches, and neither reaches the ends, bottom, or top, over which the zinc is nailed on the sides next to the brood-chambers, which leaves a space as wide as the different boards used in making the partitions are thick, between the zinc and the solid division-boards used to cut off communication between the different chambers.

In Fig. 3 is shown one of these boards

partly inserted, while the other one, leaning against the main cover to the whole hive, shows strips nailed across the ends.

These strips fit against one partition wall while the smooth side of the board covers the opening in the other, but does not reach the bottom of the space between the walls, which allows any bees to escape that may be in the space at the time the board is inserted.

The one with the rings, which are bee-escapes, fits the same way, the escapes being used when cells are being built by bees made queenless to supply additional force from brood and laying queen to the cell-builders, while those made of bars, one of which is also partly inserted, are bridges to assist the bees in passing from one chamber to another when communication is given, and also to prevent the filling of the spaces with comb.

Double zincs are wanted everywhere to prevent attempts of attacks by queens in adjoining apartments, when communication is allowed between two or more having queens, as well as to insure more satisfactory work in cell-building, and hence the necessity of double zincs in these partitions as well as between upper and lower stories under similar circumstances.

The entrances at each end of every chamber, below the queen-excluding sheets of zinc, are the full width of the chambers, while those above them are only about two-thirds of their width, the most of which are shown plugged up in the pictures.

The necessity of so many can be better understood when the point of manipulation is reached.

One of the very necessary things not shown in the illustrations is the provision for feeding without opening the hive. For instance, the two sectional covers shown in place, on Fig. 4, have holes near the corners, to correspond with the holes bored into the top-bars of Doolittle feeders, through which the latter are filled, wire-cloth cones being attached to the holes in the covers, that extend down into those in the feeders, through which feeding is done, and not a bee can escape, a piece of section or small block being used as a cover for the hole in each one.

While the above descriptions do not cover all of the little details, yet no doubt with the pictures as helps, and an understanding of the objects in view, any one with a mechanical turn of mind can construct a hive embodying the same principles, and that will work in a satisfactory manner.

[In the subsequent articles Mr. Pridgen will tell something about his methods; how he gets drones out of season; how he succeeds in rearing good queens after the honey-flow; how, in short, he is enabled to overcome many of the obstacles that present themselves, either to the queen-rearer or to the practical bee-keeper who desires to rear a few queens from some good stock he happens to have in his yard.—Ed.]

FORCED SWARMS.

A Note of Warning; the Practice of Using Starters "Pernicious in the Extreme;" Full Sheets of Combs Advocated.

BY W. K. MORRISON.

My experience with brushed swarms has been considerable and satisfactory, but I wish to warn some of your readers against one or two errors in connection with this practice, with particular reference to tropical bee-keeping.

First, it has been proposed to use "starters" of foundation when hiving the brushed swarms — a practice which I feel justified in stating is pernicious in the extreme. I know of no one error that afflicts tropical bee-masters more than this bad habit of putting bees to work in a brood-chamber fitted out with starters. Times almost without number I have seen the folly of it, hence I feel like uttering a note of warning. It has often pained me to see large masses of brood-comb occupied with drone-cells—a sheer waste. This is invariably due to the use of "starters." The man who uses starters, instead of producing large yields of honey has large numbers of drones flying about which eat the honey as fast as the busy bees can collect it. The beginners particularly should never on any account use starters, no matter what the text-books may say.

If combs are not available, use full sheets of foundation. If the bees are troublesome, and will not enter the sections, use a shallower frame. Either the Ideal or the Danzenbaker will answer. Any thing is better than starters. There is another serious objection to starters. The queen is restricted for room to lay her eggs. This is something serious, as the swarm rapidly dwindles in size, and after a lapse of four weeks becomes weak, and usually makes no headway after that. The main advantage in brush swarming is in providing the queen with plenty of room to lay in bright clean combs having neither brood, honey, nor pollen in them. Such a colony never dwindles, for the obvious reason that plenty of young bees are coming forward the while to take the place of workers dying in the harvest-field. If combs are given to the newly formed swarm it is evident the queen will not attempt to go upstairs where there is only foundation. Where full sheets are used it is better to wait 24 to 48 hours before putting on the sections to allow the queen to settle herself in the brood-chamber. It stands to reason that, if the bees have no combs to build below, they will all the more readily build the sections above, as they are anxious to build combs. *But it simplifies matters very much if a shallow brood-chamber is used.* At the same time it is bad policy to use a brood-chamber that is too small. The Ideal is quite small enough.

I believe in large hives to get large yields, and had Mr. Dadant advocated a hive composed of three stories the same size as his extracting-super I would have agreed with him in toto. It takes lots of bees to produce lots of honey; and except in peculiar localities it pays to keep the queen laying to her greatest capacity all through the honey period. Particularly is this true of the tropics and warm countries generally, where the season extends through several months.

Clogging of the brood-chamber with honey and pollen is the stumbling-block of the tropical apiarist, and brush swarming is one method of overcoming this. As soon as it appears that the hive has become congested, brush swarming is in order, as it gives the colony a fresh start in life, and also gives the apiarist a chance to deal with the combs that are left behind. The latter are better if placed over another colony where the pollen is removed, the brood hatched, and honey stored in their place. It is no use at all to brush-swarm small colonies. The honey is extracted in due season, when the apiarist again has fresh clean combs fit for any purpose.

There is no doubt at all that brush swarming is an effective way of controlling increase; but it seems to me the person who brush-swarms a colony only to give it "starters" has committed a very grave error, to say the least. He has lost all or nearly all the advantages of our modern hives, for the bees will certainly build one-fourth to one-fifth of their comb with drone-cells, and no apiarist can stand such a steady loss. If the bees must be *compelled* to enter the section, some other way must be found rather than use these "starters." Better use plenty of "baits" if the frame used is the Langstroth. Drawn combs are great drawers. This may appear to be a sort of advertisement for the makers of comb foundation. So it is, in a sense; but from my own experience I feel so strongly about it that no stone should be left unturned to help dissipate the fallacy of using starters in a brood-chamber.

It is natural that persons should desire to save expense in equipping their hives; but so far I have noticed the most successful bee-keepers use full sheets of foundation right through their apiaries, and they are wise.

[The practice of using starters or full sheets is one that depends somewhat on locality, though Mr. Morrison seems to give good proof showing that it is bad policy to use starters *anywhere.* I should be glad to see this phase of the question discussed a little more.—Ed.]

BEE-KEEPING IN CUBA.

BY E. M. DAVIDSON, M. D.

Mr. Root:—It might be of interest to the readers of Gleanings to hear from co-workers in the honey industry down here in "the Pearl of the Antilles." Others of American blood and American bee-knowledge have invaded the western part of Cuba with their busy bees; but we wish it known that in this, the first American colony in Cuba, La Gloria, the industry in nectar-gathering has made rapid progress, and we claim for this spot on the northern coast of Cuba, not an ideal bee paradise, but nevertheless a paradise as compared with many a place in the States where the problem of successful wintering is such a great one. Ordinarily one of our greatest honey-flows comes in December; but the rainy season coming on late, instead of in July, has interfered considerably with honey storage in supers.

We have organized a fairly strong bee-keepers' association here, and with many members who are real students, and some up-to-date bee-keepers of some standing. Officers of said association are: President, J. Hammond; Vice-president, James Robinson; Dr. E. M. Davidson, Secretary. We shall represent thousands of colonies in time, for possibly we can get the Cuban bee-keepers here interested in the American way, and transfer from their log hives to American ones; and we may bring them under the control of our association.

All along the north slope of the De Cubitas Mountains can be found the Cuban log hives, running now mainly for wax. The Cuban bees are the black German; but our association members are rapidly obtaining the Italian from United States queens.

Our aim in organization will be to obtain membership in the United States National Bee-keepers' Association; and we hope to gain admission to the United States National Honey-producers' Exchange if one is formed. We are praying for this as fervently as we pray for our island to be annexed to the glorious Union of the States. You may hear from us and Cuban conditions from time to time.

Root's goods predominate in this section; but we should be glad to have a depot of goods on hand to draw from at will for cash.

We all deplore the sad death of Rambler. His slate is indeed broken beyond repair.

Mr. A. I. Root is on the island, and he would be welcome to La Gloria if he would only come this way.

La Gloria, Cuba.

[Many thanks, friend D., for your kind invitation. I only regret that it did not get into my hands before I left Cuba. To tell the truth, I did not carry with me a list of our Cuban subscribers; but when I go again next fall, as I expect to do, I shall most assuredly hunt you all up. I have already stirred up the bee-keepers west of Havana to the importance of a bee-keepers' convention to be held once or twice a year or oftener. I know many of them plead lack of time and the expense of travel in Cuba; but I judge, from my own observation, that if bee-keepers would get together and talk things over, there is hardly one of them that would not be benefited, say to the extent of $25 a year, by such a conference. I am exceedingly glad to know you have made a start.—A. I. R.]

NAILING HOFFMAN FRAMES.

A Very Unique and Effective Plan for Doing the Work Expeditiously.

BY C. B. THWING.

Having 3000 Hoffman frames to nail, it occurred to me to try to devise means for doing the work as rapidly as possible. The plan I evolved enables me to nail and wire Hoffman frames at the rate of 30 per hour (when I move lively), and every nail and staple goes exactly where it will do the most good.

It is, of course, important to have the materials conveniently placed, and to perform the various operations in such an order that no false motions be made. Fig. 1, general view, shows how I find it convenient to place things. The nail-boxes should be wide and shallow, with nails spread out over the bottom. It saves time to have two boxes for second nails, as shown. The wooden anvil or holder D in Figs. 1 and 2, for spacing the nails and staples, consists of a block 4x4 and 7 high, to which is fastened a block, E, notched out on its under side to admit an end-bar only when the beveled edge is toward the right. It has in the middle a large notch for the staples, and two smaller ones for the nails. A stop or guide on the under side of E admits the end-bar far enough so that the top of the staple comes ⅛ inch from the notch in the end-bar, and the nails ¼ from the same line. The nails are ¾ inch apart. Guide F holds the end-bar square. I prefer to have the staple placed at an angle, because its lower leg will then strike the top-bar to one side of the foundation groove, and also because it is less likely to split the end-bar, when so placed, than when set straight.

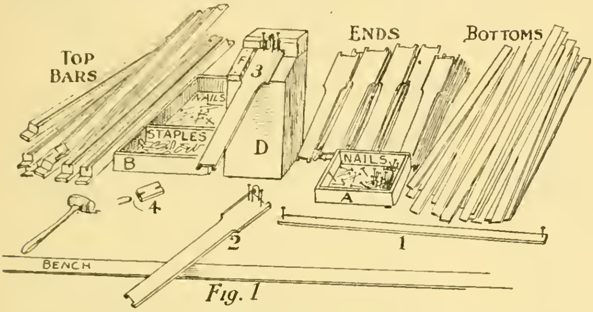


Fig. 1

THWING'S PLAN FOR NAILING HOFFMAN FRAMES.

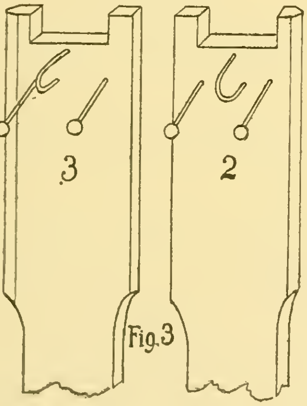
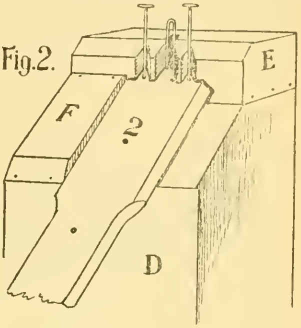


Fig. 3

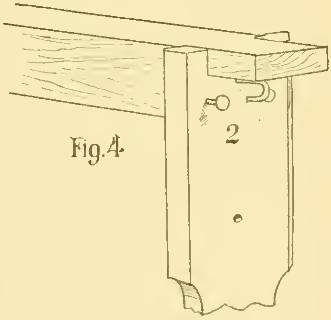
For wiring I fasten a small box, G, see Fig. 6, about 12x16, to the wall, with its bottom as high as my breast. Into the side of the bottom of this box I drive two 10d common nails, slanting a little downward. The nails project far enough so that, when a frame is hung upon them the heads hold it snug against the box. The slant of the nails lets them spring down a little when the button H is turned down upon the frame. On the end of the box G, Fig. 6, at the left, is screwed a notched piece J, Fig. 5, which keeps the frame from slipping endwise. A little box, K, Fig. 6, exactly wide enough to hold a spool of wire, is placed 4½ feet from the nearest end of G. The wire runs through a small hole in the end of this box, and the blocks LL prevent the wire from slipping over the ends of the spool. The best driver is a small-nosed farrier's or electrician's hammer.

Fig. 2.



THE WOODEN ANVIL OR SPACING-BLOCK.

Fig. 4.



TO NAIL A FRAME.

Take a bottom-bar, 1, Fig. 1, from the pile; start the nails and let it lie till needed. Take an end-bar, 2, in Fig. 1, from the pile; slip it in the anvil D, Fig. 2; pick up a staple with the left hand; pass it to the finger and thumb of the right hand, which holds the hammer about the middle of the handle. With the right hand set the staple in place against the right side of the central notch; hold it in place with the left thumb, which rests against the beveled corner of E, Fig. 2, and comes flush with its top. Set the nails in the same way, the right one first. Slip 2, Fig. 1, out and insert 3, repeating the process followed with 2, except that the staple slants the other way, so that in both cases it may strike the thicker strips of top-bar, see Fig. 3.

Fig. 5.

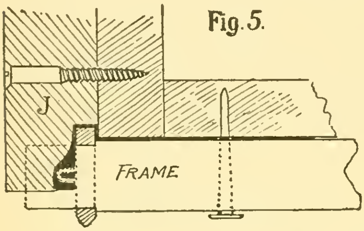
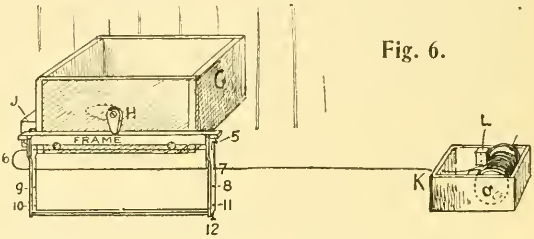


Fig. 6.



THWING'S METHOD OF WIRING FRAMES.

Before removing 3, seize a top-bar in the left hand (the pile of top-bars was laid so that all have the thick side of the bar at the left when lying grooved side up); press the end-bar 3, Fig. 3, in place with the small end pushed against the body; drive the nails home; slip the little spacing-block, 4, Fig. 1, in place, and drive the staple down to the proper level. Keeping the block in the left hand, and the hammer in the right, turn the frame and nail No. 2, Fig. 3, but do not drive the left-hand nail quite home, see Fig. 4. It projects ⅛ inch to fasten the wire, etc. Turn the frame down with 3 to the right, and put 1 in Fig. 1 in place. The right-hand nail in 1 is also left projecting ⅛ inch for reasons to be explained.

TO WIRE A FRAME.

Place on the support G, Fig. 6, with the end 2 at the right, the end 3 resting in the notch of J, Figs. 5 and 6. Start the wire through the upper middle hole at 7, Fig. 6, back through top at 6 to nail 5; loop it once around this; nail with ½ inch or less over length, and drive the nail home with the hammer. With the shears cut off the wire at a mark near K, in Fig. 6, and finish the wiring through 8, 9, 10, 11, to nail 12; loop it temporarily about this nail, and tighten the wire. To do this rapidly and effectively, seize the middle of the top wire in the right hand near the right end, and catch the loop (now rather snug already) with the finger-nails of the left hand and slip the right hand along the wire toward the left to remove any kinks. Let go with the right hand first and seize the second wire to draw up the slack held in the left hand. Repeat the process, alternating the hands; loosen the end at 12, and fasten it tight. Last of all, loosen the button, remove the frame, drive nail 12 home, and, taking the loose end of wire in the thumb and finger, revolve it three or four times about the point where it leaves the nail to break it off, and the job is done.

It takes a long time to tell it; but one minute is long enough in which to do it if you move fast and waste no time between motions.

This plan consumes two or three extra inches of wire, but saves two nails and the time taken to drive them.

The plan of working both ways from the middle of the wire saves much time, and obviates practically all of the trouble from kinking.

[Nearly every one has his own peculiar way of doing things; but Mr. Thwing has devised a very simple and methodical plan for putting frames together, and his article will be very seasonable just now when apiarists are preparing to put together frames received from the supply-manufacturers.—ED.]

MOVING BEES.

A Serious Accident, Resulting in the Loss of a Team of Mules; the Importance of Extreme Caution.

BY A. E. VB. FATJO.

Some three weeks ago I had an exceptional experience with moving bees; and for your guidance I give a hasty account of the occurrence. I was moving a few hundred colonies from one apiary to another, and on the day of the accident some 38 colonies were placed on a large hay-wagon drawn by four black mules. The wagon left the apiary at 4:30 A. M., and had traveled three miles over good, bad, and indifferent roads, when, after pulling up a rather steep and long hill, they reached a macadamized road. The teamster was told to rearrange and tighten his ropes. While moving the hives to a better place it seems the gable cover was strained enough to let a bee or two out at a time; but the next cover had closed the opening by being pressed under it, so when the hive was moved an inch or more the bees came flying out. I was driving a few hundred yards in the rear, and immediately hastened to the wagon, called for the smoker, that, unfortunately, the loader had borrowed from the apiarist (who was walking in the rear of the load), and, through inexplicable carelessness, had let it go out. I tried to crush in some tissue paper; but the space between the gable covers was too small. I had ordered the teamster to unhitch the mules; but he lost his head, and, with the loader, managed to cover the ground as hastily as possible, not even stopping to look behind. In the meantime a bee stung one of the rear mules, and she swerved to one side and upset the wagon into a ditch on the side of the road. This broke open some ten or twelve hives, and the road was filled with thousands of bees whose temper was the keenest. They stung every thing in sight which had life. Even chickens did not escape. The poor mules looked as if thousands of gold buttons had been sewed on them; then as if streaked with white paint. As the bees left their lances in the mules I pulled out a veil from my pocket and drew it over my face, smashing with my hands the forty or fifty bees which were all over my head. I then took the Cuban apiarist's machete and proceeded to cut out the mules as fast as possible. After a half-hour's hard work I got three out, the fourth being jammed between the telephone-pole and the wheel. The mules were led about two miles away, and instructions were given to give each a pound of salt, and to take out the stings. But neither was done, and all three died an hour or so afterward. The fourth was not taken out for hours afterward, and then taken proper care of, but it also died. Why it lived longer than the rest was a mystery, as it was stung more frequently than any of the other three. My mare was stung about thirty or forty times, but was taken care of immediately, and two hours afterward I drove her back home. I will, later on, give you details, telling which of the covers, bottoms, etc., stood the least damage. I drank a large glass of extremely salt water, and, with the exception of feeling badly for an hour, I was not too sick to talk. I could not tell how often I was stung.

Santiago, Cuba.

[While this experience was disastrous to our correspondent, it may prove to be very valuable to our readers. We can not put too strong emphasis upon the necessity of having a good smoker well lighted, and ready for instant use. If Mr. Fatjo had had smoke at just the right time, the disaster could easily have been averted. But in an impending danger of this kind it is easy for one to lose his head. I remember once thinking, when a boy, what I would do if a friend of mine were drowning — of the methodical way I would proceed; how I would dive down after him, bring him to the surface and to the shore, and resuscitate him; *but* I shall never forget, when the *real experience did come*, how I seemed to be paralyzed. I saw my friend go down right before my eyes, within about ten feet of me. It seemed hours before I could recover myself sufficiently to use my reason. Then, instead of husbanding my strength, I struck out wildly under the water after my friend, used up my breath, and strangled. If it had not been for timely assistance this tale would never have been told. Human nature is a good deal the same the world over; and when bees get on a rampage like this, one is not apt to do the wisest thing. Indeed, he might do the very things that these two assistants of Mr. Fatjo did do — and that was, to run. But our correspondent, if he had had a little smoke, would probably have averted the disaster; and if his helpers had done as he told them, the lives of the mules would in all probability have been saved. My own experience last summer convinced me that a pound of salt given soon enough to a horse badly stung will probably save its life. For the benefit of those who did not read of that experience I refer them to page 685, last year.—Ed.]

HONEY FOR THE GROCERY TRADE.

Importance of the Producer Keeping in Touch with the Retailer; the Grocer who Makes a Specialty of Selling Honey, and the One who does Not; Honey as a Food.

BY M. MOYER.

The honey trade this year has not been up to expectations. Prices opened in the fall rather high. The crop was reported short. Bee-keepers held back, and dealers were anxious to secure it. We still find considerable quantities in the hands of bee-keepers, and dealers have more on hand than they care for, and, in consequence, prices are easier. Many dealers would be glad to sell out at what they paid, and even at a loss. It appears that honey goes into use quite briskly at a certain price; but when held above that point other things will take its place. I think if bee-keepers would sometimes confer with some of the largest dealers at their conventions, and find out the best means to bring the value of honey as a food before the consumers it would be very much to their interests. At present it seems to be the aim of bee-keepers to get their honey off their hands at the highest prices, and care very little what becomes of it after that. They have not studied sufficiently the importance of creating a greater demand for their goods. A pail of good honey, sold in good condition, will create a demand for another one; but if it does not give satisfaction it spoils the sale of perhaps a dozen. I know from personal experience that families averaged 10 lbs. a month as long as they got a good article, and that one pail of inferior cut off that demand for a whole year. They imagined they got tired of honey, when the fact was the honey was not up to the mark. Honey requires a good deal of attention, and to be properly put before the customers; and this is not done when every grocer sells honey, and when any mixer can adulterate it and sell it.

Years ago there was very little honey

sold; in fact, there was not very much produced, and people in our city would buy it only in small quantities as a medicine. Handling only specialties at the time, we made honey one of them. We brought it before our people, and in every possible way impressed upon them the value of honey as a food. The result of this was, so far as our influence reached, that people used, I am safe in saying, five times as much honey as they do to-day. When it was noticed, by the ordinary grocer, that we were selling so much honey, they all dabbled into it, and, not wishing to do the advertising for others, we discontinued; and the result is evident all over the city. Common grocers, without any experience, were taken advantage of by some bee-keepers or mixers, and were loaded up with poor honey. This, as already shown, had the effect of checking the demand. People are, as a rule, very ignorant of the real value of honey as a food; and to educate them in this point, and how to put the best quality of honey unadulterated into their hands, is a problem of greater importance to be considered by bee-keepers than the skill of producing more. By wise and judicious work in this line I am sure that a market will open up for all the honey that will be produced in our country.

Toronto, Canada.

[M. Moyer & Son are general grocers and provision merchants of their city, and the statements made by the senior member of the firm can be taken with some degree of authority.—Ed.]

CAUSE OF WEAK COLONIES.

A Rational Cure for Spring Dwindling.

BY ARTHUR C. MILLER.

Among the many topics which bob up serenely every now and then is that of the treatment of weak colonies in the spring. It is one of those things which fail to get settled; but, after all, could much else have been expected when we consider how the subject has been treated?

I am going to try to settle it, for a while at least, by giving the *reasons* for some operations and against others.

Like many another trouble it is more easily prevented than cured, and more profitably; for, with but few exceptions, the weakness is due to faulty preparations the previous fall. Such faults, for instance, as poor or failing queens, or queens introduced too late in the season to small colonies or those composed mostly of old bees. Other causes are, too late preparation, late overhauling, and imperfect protection.

But having the weak colonies in the spring, what shall be done with them, and *why?* One of the old rules was, to unite enough such colonies to make a fair-sized one; but such never stay put. They steadily dwindle until they are as small as any part was at the beginning.

Another rule, but much less often given, is to unite one or more of the weak colonies with a fairly strong one. This practice is excellent. Here are the *whys:*

A colony weak in the spring is composed very largely or entirely of old bees. They must keep warm, gather food, and rear brood. Each day their numbers decrease rapidly, and but few young bees are hatched to take their place. The old bees are enfeebled; they easily succumb to the adverse weather conditions, and wear out quickly, the effort to keep warm and rear brood being too much for them to do successfully. Unite several such colonies, and you have not materially changed the conditions. It is just as hard for them to feed brood; nearly as much energy is required to keep the necessary heat, and their death-rate is the *sum* of that of the individual colonies. But put one or more such weaklings with a good colony. The old bees are at once relieved of all nurse duty, and of playing furnace. They start out from a warm hive, and can put every bit of their waning strength into gathering nectar, the usual work of such bees under normal conditions. While they last they are a real aid to the strong colony; and when they are gone, young bees, nourished by the nectar they have gathered, are ready to take their places.

Uniting in the fall is generally done under reversed conditions. The bees are almost always young, or a large part of them are; brood-rearing is decreasing, and field labor is about over, consequently a combination then of several small colonies into one good-sized one is successful if done early enough.

In talking about the age of bees in this connection it should be borne in mind that with them *age* consists of time elapsed *plus* work done. Find the *why*, and methods will create themselves.

Providence, R. I., Feb. 9.

[Your ideas are sound in theory and practice.—Ed.]

TENEMENT CHAFF-PACKING FOR WINTERING BEES.

Outdoor Packing in General.

BY G. C. GREINER.

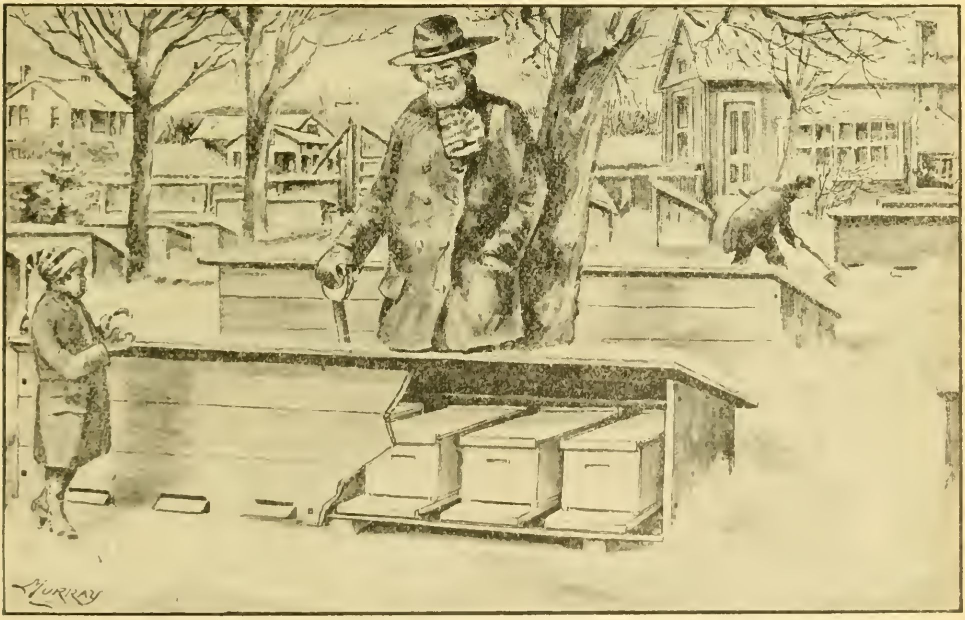
We know from years of experience that we can not winter bees in single-walled hives on their summer stands with any degree of certainty. This applies to localities where winter conditions are the same as here in Western New York, with an occasional zero-blizzard of a week or more at a time. As a choice I should prefer a properly built bee-cellar to winter my bees; but as we can not all be as favorably situated as Mr. Doolittle, whose underground cellar does not vary more than ½ degree from 45° F., no matter how the temperature changes outdoors, we have to do the next best thing, and resort to chaff hives or their equivalent.

For winter use, chaff hives are all right; they give very good results in wintering, but they have some unpleasant features which make them very objectionable for summer use. To suit my individual notions they are too clumsy, too heavy to handle, and, what is still more annoying, they are not as accessible, supers as well as brood nests, as our single-walled hives. To overcome these objections I use now, after some experimenting, an adjustable chaff-box, which combines the advantages of a well-built chaff hive with the easy, convenient management of the single-walled hive.

The accompanying illustration gives the idea; a portion of the front and the chaff packing is left away. The box is made in sections; sides, ends, top, and bottom, are all separate. Each part is well cleated, and fitted to its place. The cleats are all on the inside. This may not be very essential, but it makes a nicer, smoother job in appearance, and prevents the water from soaking in, which it would do if cleats were on the outside. The whole structure is held together by eight square headed three-inch wood screws, two at each corner, and four two-inch screws of the same kind, one in the middle of each side, and end at the bottom. The top is simply laid on; the only fastenings are the end cleats, which fit inside of the box to keep it from getting out of place. A layer of roofing-paper is tacked on to protect the whole from above. The dimensions of the box are governed bv size and number of hives, and our individual preferences. I allow about three inches of space all around for chaff packing, and put five colonies in one box. I have tried larger boxes, holding nine colonies; but I found, while they are more economical in regard to expense and labor, they are, besides other disadvantages, too large to be easily handled.

We all know that bees find their homes mainly by being accustomed to their location. Appearance, also, has a tendency to keep them from going astray. We can change either of these two factors (the former cautiously), and the other will be a help to pilot them home. In packing for winter we have to change both, and here is where we have to use some precaution to guard against loss of bees. As a rule, our bees are more or less scattered over the bee-yard during our summer campaign. I aim to have mine in rows of about eight or nine feet apart, and from two to three feet between the hives. In our chaff-boxes, with three inches of chaff between them, they have to stand nearly as closely as they can without interfering with one another. It would not do to move them from their scattered position and place them in a new habitation, so different in appearance, at the same time, but it is strictly necessary that they occupy the place they are to take in their chaff-box, long before the attempt to pack is made, to make sure that they are well acquainted with their location.

It may seem like a long job to move and arrange all the colonies of an apiary from their scattered positions into close-standing sets of five and five, but it is not. If rightly managed, if we use a little forethought during the summer in placing our colonies,



G. C. GREINER'S TENEMENT WINTERING-CASE.

keeping in view the arranging for winter packing, only about 4 per cent of all the colonies have to be handled at all. For instance, take two rows of ten each, eight or nine feet apart, with about two feet between in the rows. Move Nos. 1, 2, 6, and 7 of the back row ahead, and Nos. 4, 5, 9, and 10 of the front row back (the length of a hive at a time) until they all have reached their corresponding spaces between those colonies that were not moved. In this way only eight of the twenty have to be handled; and if we have a few extra stands to start in with, so that each colony need not be picked up twice, a very few minutes each day will accomplish the whole operation in less than a week.

The packing should be done before winter sets in. I select some cool pleasant day in November when bees are not flying. When every thing is ready, boxes, chaff, etc., on the spot, the colonies that are to go in one box are set on the ground in front of their stands. These latter are then taken away, and the bottom of the chaff-box put in their places, using two blocks the same height as the stands for foundation. As a protection from below I spread two or three thicknesses of carpet or burlap on the bottom, not only to protect against cold, but to guard against all possible jarring also, for my aim is to make the change without arousing the bees. The colonies are then set back on this so prepared bottom; and if every thing is done just right they occupy exactly the same place they did on their stands. After this the building-up of the box, and filling in the chaff, is an easy matter. If I wish to pack with upward absorbents and ventilation I fill in chaff level with the hives; remove the honey-board, and cover with quilts or blankets, and finish by filling the box with additional six or eight inches of chaff. Laying on the roof completes the job.

The unpacking is done in very much the same way, but in reversed order. The top is removed, and all the chaff above the hives gathered up. I put mine in large sacks, store in a dry place, and use again the next fall. The sides and ends are then unscrewed and laid flat on the ground to catch the chaff that was used around the outside, and as much from between the hives, as possible. After all the chaff and the different box sections are taken care of, the colonies are again set on the ground, the last remnants of the box removed, and the old spot is once more ready to receive the stands and bees.

La Salle, N. Y.

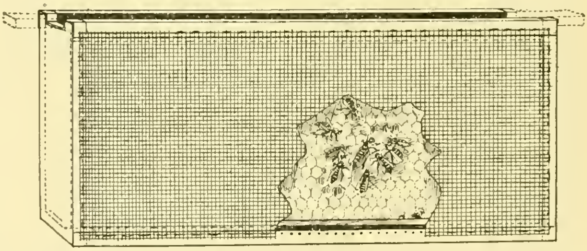
[But, friend Greiner, why do you think it necessary to have your bees scattered so far apart during the summer? It economizes room and steps to have the hives in groups. The groups may comprise as many as eight or ten hives; but usually a less number is better. It is our practice to put our hives in groups of four or five; hives in a group five or six inches apart, and the groups about ten feet apart. If you practice the grouping plan throughout the entire summer you will see its advantages, and save the trouble and annoyance of shifting your bees every fall and spring, to say nothing of the loss you would save in bees.—ED.]

A BROOD-FRAME INTRODUCING-CAGE.

What to Do when a Colony Refuses to Accept a Queen.

BY. C. V. KINTNER.

By reading GLEANINGS since 1879 I have found a good many things in its pages that are valuable. I should like to describe an introducing-cage that might be a benefit to some one. I will give some idea of my luck in introducing queens. When Mr. Hutchinson advertised his Superior stock for sale I sent him an order for a queen, and I lost her in introducing. I wrote him my luck, and he sent me another. She proved to be a hybrid. I wrote him, and he sent me a third queen. I then sent him money again for a queen, and I lost that one. I wrote him, and he sent another the second time, and I lost her. I concluded not to say any thing more; but Mr. Hutchinson wrote me a letter afterward, and in answering him I told my luck again. He answered me, and said he wanted me to have something for my money, and he sent me a third queen. I lost that one. I then tried to cover the cost of the last one, and sent him 75 cts. I then saw I would have to devise some method of introducing queens or I could never improve my bees. I made a wire cage large enough to take in an L. frame of brood, of which the following are the general specifications:


KINTNER'S BROOD-FRAME INTRODUCING-CAGE.

The bottom and ends are made of tin bent in a trough or square-box shape at each edge, the proportion being a tin 4 inches wide with one inch turned up. An L-shaped tin forms the sides of the top-bar, but at each end of the double tin bent over, so as to increase strength. All corners are well soldered. Along the inner edges of all these tins are small holes ¼ inch apart, used in sewing with foundation wire the wire cloth which forms the sides of the box. When a frame is placed in position, and hangs in the cage with the new queen and her retinue, and other bees if desirable, there is a bee-space left on all sides of the frame, the top-bar of the frame filling the whole cavity of the box at the top, thus excluding the rest of the colony. This box with the frame inside takes the space of two ordinary frames; otherwise it hangs in the hive like the other frames.

To introduce, first remove the old queen and then take a frame of very nearly all capped brood, and, if possible, a frame with many young bees just cutting their way out. Remove all bees from the frame; put your new queen with her escort on the frame or in the box, and hang the same in the cage in the hive. As this cage or frame takes up more room you can make room for it by removing some frame that has little or no brood in it.

The last queen was introduced in the manner just described, and, indeed, was forgotten for a week; and when I went to remove her from the cage the frame was found to be full of young bees, and every cell had an egg where young brood had been hatched, and some good-sized larvæ in the comb. All queens were introduced successfully, and I believe it to be as nearly infallible as any method we shall ever find.

Carrollton, O., Dec. 23.

[There may have been a reason for your continued failure to introduce by the method given by Mr. Hutchinson. I should assume, under the circumstances, that there was either a fertile worker or a good-for-nothing virgin, either of which was so insignificant and small, and so much like the common bees, that you failed to observe her presence; but after you adopted the large cage for inclosing the brood-frame, you had, of course, no difficulty in introducing the last queen to the hatching bees. The presence of a good laying queen, protected by the wire cloth, and practically in the center of the hive, with eggs and brood in all stages, doubtless induced the bees to destroy their worthless queen-mother, if they had one, and made them think, therefore, they had better take up with something of some use.

I never let a colony kill more than two queens for me. If they kill the second they are pretty sure to kill the third one and the fourth. Once in my early experience I had a colony so notional that they killed about five queens. They would even tear down the cells we gave them. Finally I stole a march on them — let them build their own cells, and then grafted them with larvæ from an imported queen. In the course of time I had a first-class laying mother doing full service. I know this colony was queenless, because they would continually start cells. But nine times out of ten when a colony persists in killing every queen that is introduced it has something in the hive that it recognizes as a queen; and until that something is removed it is a waste of time and money to try to introduce.

Your cage may be an excellent arrangement for introducing a very valuable queen in any colony, whether obstreperous or not; but if I wished to be perfectly sure, I would put a frame of hatching brood in a nucleus by itself, for there is a possible danger that, when the wire cloth is taken away, the older bees, which have not had actual contact with the new mother, might destroy her.

There are not many queen-breeders who would have been generous enough to continue sending queens, as did Mr. Hutchinson. He is one of those few, and I am glad to hold him up as a worthy example to some other queen-breeders who refuse to give their customers the benefit of the doubt. I believe it always pays to be liberal—that is, go more than half way in dealing with patrons. But there are some who will not be satisfied with any reasonable form of adjustment. There is no use, in such cases, in casting pearls before swine.—Ed.]

MURMURS FROM TEXAS.

Pseudo-science versus True Science.

BY WILMON NEWELL.

There are a few points which among bee-keepers at present seem to be popular bones of contention. I am, therefore, tempted to take a crack at them myself.

The first of these is that "umbilical cord." The subject as at present being discussed by the bee journals is fast becoming ridiculous. While I do not like to differ with such an eminent authority as Dr. Gallup, still he has made a mistake, no doubt, about it. If he will examine any standard work upon anatomy, physiology, zoology, or embryology, he will find that the umbilical cord is one of the membranes having for its purpose the nourishment of the unborn fœtus (or embryo) of *mammals*, and of *mammals only*. The umbilical cord and the placenta in their origin are closely related, and arise as *developments of the mucous membrane lining the uterus of the mother*, and are in no way developed as structures of the embryo. The umbilical cord serves to carry on the circulation between the tissues of the embryo itself and the placenta or embryonic sac surrounding it. How, then, can a queen-bee, which is *not* developed within the body of the mother, possess such an organ? The name "umbilical cord" is applied to a structure which occurs in *mammals only*, and no amount of argument can change the *meaning* of the term.

What I strongly suspect is this: Dr. Gallup *has* discovered, in the development of queens under the most favorable conditions, an organ or tube through which the queen is enabled to take up some of the surrounding food-media, after passing into the pupal stage. However, with all due credit to the doctor for his discovery, the fact still remains that he has given this structure, or organ, an entirely erroneous name. It remains to investigate the formation and growth of this organ, to determine from what segments or portions of the body it is produced, and name it accordingly. When a queen with an "umbilical cord" appears in *our* apiary, we will immediately investigate her anatomy with a view to ascertaining just what that structure is.

Another bone of contention is that of *Bacillus alvei* and *Bacillus mesentericus*. Dr. Lambotte's contention that these two germs are identical is not well supported, as shown by his own statements. While the fact that these two germs have the same general form and appearance under the microscope, while both have the same effect when injected into the circulation of an animal (presumably a guinea-pig or a rabbit), and while cultures of *mesentericus* may destroy more or less brood, these arguments are not convincing. Any foul decaying matter—which is really what a culture of *mesentericus* amounts to—spread over healthy brood, would be likely to kill it. Cleanliness is as much a necessity for the develop- of bee-larvæ as for the development of a small babe. Likewise Dr. Lambotte found that *Bacillus mesentericus* would grow on cultures made of the larvæ of bees. *Mesentericus* is a saprophytic germ; that is, one which derives the organic material for its growth from decaying organic matter (in contradistinction to "parasites," which derive their nourishment, or part of it, from *living* organisms). True saprophytes are rarely confined to any one material as a "host," but the same saprophytic germ may often be found upon a variety of materials. Dr. Lambotte's assertion that cultures of *mesentericus* killed larvæ, but failed to start a *contagious* disease, is strong evidence that *mesentericus* is a true saprophyte, and not in any sense a parasite, as is *Bacillus alvei*. Past experience has demonstrated that the introduction of *Bacillus alvei* into an apiary when brood is in the hives invariably results in *contagious* foul brood. No other kind of foul brood is known. This, *mesentericus* has failed to do; and until Dr. Lambotte has demonstrated that the introduction of *mesentericus* produces a contagious disease in no way distinguishable from foul brood, his statement that the two species are identical must stand as extremely doubtful.

College Station, Texas, Jan. 27, 1903.

[I am glad we have so capable a man as Mr. Newell at the Apicultural Station in Texas to separate fact from fiction and false science from real science. When I first saw the reference to the umbilical cord, I regarded it more as a joke than any thing else; but apparently a good many correspondents began to think there was some "science" about it. That there may be something corresponding to the so-called umbilical cord is probably true.

Mr. Newell's statement regarding *Bacillus alvei* and *Bacillus mesentericus* is undoubtedly true science. It did not seem possible at any time that an old and recognized form of rot was an old enemy under a new name.—ED.]

Heads of Grain
from different fields

SELLING HONEY THROUGH THE U. S. EXPRESS CO.; A GOOD SUGGESTION.

I wish to inform my fellow bee-keepers that I have found a safe and easy way of selling honey. The U. S. Express Company publishes a list each month of goods for sale along its line. You write to the Order and Commission Department, New York, stating what you have to sell, and from what station. They will print it and send the slips broadcast. I have sold every bit of my honey at a good figure to agents in Indiana, Pennsylvania, and West Virginia. If you have honey to sell, call on your nearest agent for information.

Spottswood, Va. W. E. TRIBBELT.

[Your suggestion is a very good one; and while we have known that the United States Express Co. did a general commission business of this kind, the matter has never yet come before our readers. It costs nothing for a bee-man to apply to his local express agent; for, indeed, the express company charges nothing, for, as the company says, its remuneration comes out of the haul of the produce. Mr. Tribbelt incloses one of the U. S. Express Co.'s commission blanks. The following is an exact copy of the heading and announcement:

UNITED STATES EXPRESS CO.
ORDER AND COMMISSION DEPARTMENT.
PRICE LIST NO. 99 NEW YORK, JAN. 22, 1903.

Agents must have these lists distributed among our patrons.

Dealers can buy, and producers can sell any and all commodities they handle through our *O. and C. Department*. Our *agents* will *solicit orders* from *dealers* and *quotations* from *producers*, and furnish information relative to this department. All prices F. O. B. at shipping-point, and subject to market changes. All orders must be given to the local agent, who will furnish proper stationery, and forward same to the agent at shipping-point *No guarantee given;* our agents simply transact business between producer and dealer for the express charges derived therefrom.

Immediately following this is a long list of various kinds of produce, telling where the same is located, and the price. At various points in Michigan, fish is quoted at 10, 7, 6½, 4½, according to the kind. Celery is another prominent item. Apples, grape juice, lettuce, nuts, honey, maple sugar, eggs, poultry, butter, pet stock, swine, etc., are listed.

These commission blanks are sent all over the United States, and any one can often obtain produce at reasonable figures. Among the items of honey I notice two tons of white clover at 13½ in 1-lb. sections, at Eau Claire, Wis. Another item of white clover at 18 cts.; amber at 16, in the comb or bottle, at Noble, Pa.; still another is white clover at 12½ cts. at Spottswood, Va., the postoffice of our correspondent above, and which he says he sold at a satisfactory figure. Observe, you pay no commission except the express; and if you sell to the other party, "he pays the freight."

The advantage of this commission scheme is that one can pick out the nearest post-office having the kind of produce he desires to secure. He simply goes to his local express agent and asks him to get what he calls for.

And, again, when he has produce to sell he gives the items of it to his local agent, and requests him to place it in the commission department of the company at New York—no writing at all until a customer is found, when the sale is consummated and the cash turned over. If you do not wish to trust your man, all you have to do is to send the produce subject to the C. O. D. plan, by which the express company will collect your money and turn it over to you without any chance of loss on your part.

The practicability of the scheme lies almost entirely in the fact that very often a customer a short distance away can be secured, when the express charges will comparatively light. For long hauls or heavy shipments the plan would not be feasible.

If your honey is sold to other parties through other channels, you will, of course, notify the company that the goods are disposed of; but, ordinarily, if one places his produce in the hands of the express company he should wait a reasonable time for returns.—Ed.]

HOFFMAN FRAMES TOO MUCH STUCK UP WITH PROPOLIS; HOW TO CONVERT INTO MILLER NAIL-SPACED FRAMES.

Dear Dr. Miller:—I have almost decided to take my jack-knife this spring and cut all the end-bar projections off my Hoffman frames, thus reducing them to the regular hanging frame. I have about 800, many of which have been in use from five to ten years. As the result of your experience and excellent practical judgment I want you to advise me in the matter. My objections to Hoffman frames are, too much propolis; crowds the division-board against the side of the hive; the frames can not be crowded close enough in the spring; can not be used to advantage in supers for extracting; must be spaced like hanging frames — that is, only 7 in an eight-frame hive, and 8 in ten-frame, thus doing away with the Hoffman principle, and making them non-interchangeable. There are other objections, such as increase of cost, and necessity for extreme accuracy in making. Last spring I had 300 made by a regular dealer in supplies, and he made awful work. The advantage of rapidity in handling, shipping bees, and moving to out-apiaries, does not count with me.. To put it very mildly, I would say that for the extracted-honey producer they are a decided nuisance. Alpine McGregor.

Inglewood, Ont., Can., Jan. 17.

[Dr. Miller replies:]

Where there is no propolis there is much advantage in the partially closed ends of the Hoffman and the automatic spacing. The trouble is that you have propolis, and the frames which worked like a charm when in use only a week become intolerable with time. Your jack-knife remedy would, I think, be an improvement; and if you don't care for rapidity of handling nor exactness of spacing, then nothing further is needed. Pardon me, however, for doubting that you mean just what you say when you say that the advantage of rapidity of handling does not count with you. Automatic spacing I think we must have in some form, for rapidity and exactness.

Answering you categorically, the probability is that reducing your frames to loose hanging frames will be better than to keep them as they are. I have done more or less whittling on mine; and if I were to come to a hive full of Hoffmans now, it would be a question whether I would transfer them into Miller frames or whittle the objectionable projections and then make them self-spacing with nails or staples.

If you take the latter course, whittle away the V-shaped edge (leaving the other edge untouched) until you make the end-bars 1⅛ inches wide. Then take a wire nail or a staple, and drive into the unwhittled side at each end until it projects ¼ inch. These will work very well mixed in with Miller frames, and I advise any one in a gluy region to try a few of the latter.

Marengo, Ill. C. C. Miller.

[We have made an effort to introduce frames with metal spacers, and for several years have offered for sale staple-spaced frames. Yes, we have, where we thought propolis was bad, recommended them in preference to the Hoffman; but "they don't go." I have been surprised over and over again to learn how the trade will have the Hoffman. After all, it is only in certain localities that propolis seriously handicaps the handling of such frames. Propolis, though, is very bad in Marengo, much worse than it is here in Medina, and I do not blame the doctor, nor, perhaps, our correspondent, for wanting something else.—Ed.]

THE DANZENBAKER AND THE EIGHT-FRAME LANGSTROTH HIVE.

I have 55 colonies of bees in 8 and 10 frame chaff hives. I expect to increase 25 next year; and what bothers me is the hive-body, as I make my own outside or winter case.

Would you advise me to buy the Danz. or the Langstroth Dovetailed? Will bees store more honey in the Danz. than the other? Will they winter as well (that is, will they need as little feeding?

I run for comb honey, and want the very best hive I can buy. Which is the better—the 8 or the 10 frame Langstroth?

Winchester, Ind., Nov. 24. C. A. YOST.

[For the production of comb honey, especially a fancy article, I know of nothing better than the Danzenbaker. While, as a rule, one hive will not produce any more honey than any other standard hive, yet the one *may* put *more of it in marketable shape.* Our own experience is that the Danzenbaker will have less honey in the brood-nest after the honey-flow, and more in the sections. The brood-nest being shallow, the honey is forced above. Take, for example, the Danzenbaker and eight-frame Langstroth-Dovetailed hive, each would produce, we will say, 75 lbs. of honey, both comb and extracted. The Danzenbaker might have the proportion of 65 lbs in the supers and 10 in the brood-nest, while the eight-frame Dovetailed, being deeper, might have 50 lbs. of comb honey in the supers and 25 lbs. in the brood-nest. In this supposable case the Danzenbaker would have 15 lbs. more of comb honey, which, we will say, is worth 15 cts. per lb., as against, perhaps, 15 lbs. of extracted honey at 7 or 8 cts. per lb. in the eight-frame Dovetailed.

This is, possibly, putting the proportion a little stronger than it would be in practice; but Mr. Vernon Burt, who is rapidly changing his eight-frame Dovetailed hives over to Danzenbaker, says, after three or four years' test, he is fully satisfied that he can clear more money with the Danzenbaker than he can off the eight-frame Dovetailed. In other words, he converts honey in the brood-nest into comb honey at a higher price. If he sells this at 15 cts., he puts in its stead, after the honey season, a three or four cent syrup made from the best granulated sugar. He therefore cleans up ten or eleven cents if the proportions I have named hold true. Suppose he cleaned up only five cents, then for every pound of honey he gets more from the Danzenbaker than he would over the Dovetailed, he makes five cents. If in the supposable case he gets 5 cents more, his profit in the Danzenbaker over the Dovetailed will be 75 cts On 100 colonies this would amount to $75. Now, please do not, any of you, go and take this supposable case and make out that I claim that the Danzenbaker will clean up 75 cts. per hive more than the Dovetailed. I simply wish to illustrate that a shallow hive may, under favorable conditions, make more money for its owner than a deeper hive that will accommodate just so much more honey in the brood-nest.—ED.]

APIARY IN STRAIGHT ROWS OR ON THE HIT-AND-MISS PLAN.

Up to this time I have had my hives (50 colonies) scattered around promiscuously, giving me some trouble in attending to them this way. A few days ago I put them in two straight rows, about a yard apart. Some one to-day suggested that this would give me trouble, the hives all looking so nearly alike the young queens would get mixed up and I would be likely to lose some of them. Will you kindly give me your idea? W. P. SMITH.

Penn, Miss., Feb. 9, 1903.

[It is true, there is some objection to having hives, in straight rows, all hives alike, and all opening in the same direction. At our yard in Medina we found it necessary, years ago, to have the entrances point to the four points of the compass, and to arrange them so there would be no two hives pointing in the same direction within thirty or forty feet.

If you happen to have a variety of hives, mix them up in the row; then, where possible, station one hive near a shrub for shade; another near a tree, and another near some other distinguishing object.

The plan we now like best is grouping, putting three or four hives in a cluster, perhaps ten inches apart, and each group ten feet from any other group. One group can be placed under a big tree, and another group under a small one. Still another can be placed near the bee-house, and another before some other equally prominent object. A bee, on returning from the field, seeks its group and then singles out its own hive-entrance in the group, which, if there are three hives, may be the one in the middle or the one on either side. The bees in one group do not get mixed up; but it sometimes happens that young bees will fly from one hive in a group, say from the northeast corner of it, and return to the northeast corner hive of the group next adjoining. But all this will be avoided if one group looks different from some other on account of some surrounding object. Where trees are scarce there can be several groups in between the trees. Those groups unshaded should be covered with shade-boards. This alone will make a distinguishing characteristic, and will help to avoid the general confusion.

Unless one is rearing queens he does not need to pay so much attention to the arrangement of his entrances. It is only the young bees that get confused, as a rule, and they are generally accepted in any hive.—ED.]

AN OPEN LETTER FROM THE RAMBLER'S PASTOR; THAT CLOUD OF SORROW; SOMETHING OF THE RAMBLER'S CHURCH LIFE.

A friend has sent me a copy of your journal containing the obituary notice of John H. Martin, formerly of Hartford, N. Y., and I can not forbear writing a few words, as his friend and former pastor, expressing my appreciation of your estimate of this noble man, who has gone to his reward, and adding my own tribute to his Christian character and sterling worth.

My ministry began with the First Congregational Church of South Hartford, N. Y., April, 1889, of which church John H.

Martin was the senior deacon. All of my correspondence was with him regarding the pastorate, and he thus stands in a peculiar relation in this way with the beginning of my ministry. During the years of my pastorate we were brought very closely together. I came to know him thoroughly. Scores of times we were in consultation regarding affairs pertaining to the church, and a warm personal friendship accompanied all. In your article regarding his life you call attention to the large fund of humor that the "Rambler" had. This is true, and yet he was a man of heavy burdens and of great sadness of heart as well. I remember very well meeting him one morning when, as I noticed how careworn and pale he looked, I asked concerning his trouble. He replied, "You know it is written, 'Hope deferred maketh the heart sick'" (Prov. 13:12). There is a case of real heroism here that this brother, instead of surrendering to his sorrows and trials, looked on the bright side, and allowed humor and good cheer to win; and in this I am sure his Christian faith was his great aid.

A noble Christian gentleman of kind spirit, and an earnest desire to benefit his fellow-men, has gone home to God. His body rests near the noble hills he so dearly loved, and his memory will long remain in the hearts of those who knew him, and in the knowing learned to love him; and the Rambler's last journey over the goal, we believe, has been to the heavenly city.

C. W. Wilson,
Ashland, O. *Pastor Cong. Church.*

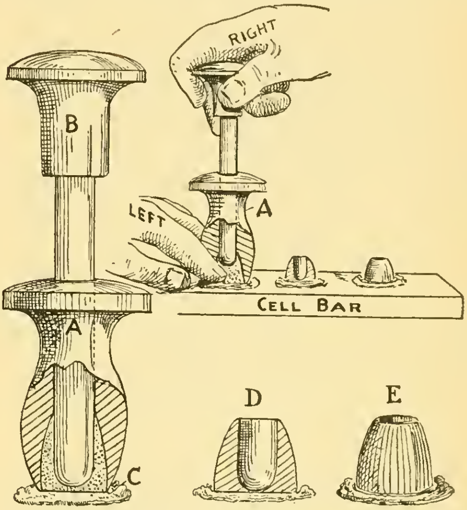
[We are very glad to hear from Rambler's old pastor. We knew the Rambler as a bee-keeper, as an inventor, as a traveler, as a humorist; and we knew, also, he was a man of sterling Christian character; but Mr. Wilson has opened up some phases in Rambler's church life that may be of interest to his friends, and we gladly present them to our readers.—Ed.]

CARTER'S CELL-FORMING AND CELL-STICKING STICK.

There is an item on page 587, last year, in Gleanings, where it speaks of buying cell-cups. It would be too slow work for me to stick them fast. I should prefer the wax in a little ball; and, with an invention of mine, press it fast to the bar. Thus the making and fastening are done in a second or two. My device is made of wood, as shown. It is best to make of boxwood, as that kind of wood will make the smoothest cell-cup, and sharpest on the edge. I have one of that kind, and it works very well.

DIRECTIONS.

Wet or soak the machine in water, and keep it wet so the wax will not stick to it. I use medium brood foundation cut in pieces an inch square, and in a warm place, so the wax will work easily. I gather a piece up in a ball and put it in the end where the largest hole is at C; then I press the wax down on the bar where I want it to stick, and hold it there with my left hand. Then I push the former, B, down the small end of the hole A, and turn it part way round, back and forth, two or three times, and still keep pushing down with my left hand until the former has been well pushed down. I turn back and forth to the right and left. I next hold the former down, and lift up and turn to the right and left with my left hand. That takes the one piece away from the wax while the former holds it fast to the bar—see upper part of the drawing. Gently turn the former to the right and left, and lift the former out of the cell-cup, when the result is as shown at D and E.



C. K. Carter.
Eagle Grove, Iowa.

[We sent this device to our artist, Mr. Murray, of Cleveland, requesting him to follow directions so that he could show the *modus operandi.* After finishing the drawing, he tells of his experience as follows:

> I have tried the device, and have no doubt it will work after a fashion; but in my hands, working under difficulties, the product was rather ragged and unsightly, and I think it would have a tendency to make bees cross-eyed; but practice would no doubt greatly perfect it. As you sent no wax I purloined wife's ironing-wax, and in due course of time had cells galore from Dan to Beersheba all over the kitchen-sink, greatly to said wife's astonishment, and imminent danger to the *statu quo* of the family. After all, I would pronounce the thing a success in skillful hands. R. V. M.

I did not try this device myself, but gave it to an employee to test. His experience with the first lot was much the same as Mr. Murray's. I believe the principle to be correct and right. We prefer, however, to form the cells on the same general plan by the thousand, and then stick them on the bars afterward, for we believe we can perform the two operations separately in less time than in one operation as shown above. We will show our plan a little later.—Ed.]

THE POSTOFFICE OF MR. J. M. JENKINS CHANGED TO HONEYSUCKLE.

Please change my address from Wetumpka to Honeysuckle, Ala. I have not moved —still doing business at the old stand; but a new postoffice has been established right on our premises, and we are now able to get Gleanings, our letters, orders, etc., about two hours earlier, and have one hour longer to work before the mails are closed to go out. We hunger and thirst for our mail, for we want to work it up and answer promptly, and this change will help us greatly in our efforts to be prompt. As it was, the train passed within 30 feet of us, going to Wetumpka station, thence nearly a mile in a push-cart to the postoffice, and when all the mail for the town was distributed, registers written up, etc., by using a bicycle the boy could get ours to us *by and by*. About two hours later we had to send over what we had ready, and the rest of it next time. I made application for a postoffice, stating the facts as they exist, and asking for investigation of same. The Department was fair enough to see the disadvantages a growing business was laboring under (to say nothing of any near neighbors), and gave us the postoffice, with two mails per day. So when you come to see us again, get your ticket to Wetumpka; but when you write us, remember we shall receive it hot from the track at Honeysuckle, Ala. J. M. Jenkins.

Wetumpka, Ala., Feb. 21.

[When I visited Mr. Jenkins, nearly two years ago, it seemed to me a little strange that all his mail matter, which might have been unloaded within a short distance of his factory, had to go two miles across the river, then back again, making hours of delay. Mr. Jenkins is to be congratulated on the change. If I remember correctly, the honeysuckle is a prominent plant in his neighborhood.—Ed.]

GOLDEN AND LEATHER COLORED BEES COMPARED.

In Gleanings for Feb. 1, page 1, I noticed that the *leather*-colored bees are spoken of as "probably the better bees;" and my experience of a good many years is that the leather-colored bees for honey-gatherers are the best, but they do not build as white comb as the goldens. Three seasons ago I had in my bee-yard, in Georgia, a golden queen selected out of 24 from J. B. Case, and also the leather-colored "red clover" queen from your apiary, and in the spring they started off with the same conditions; but the red-clover colony produced several pounds more than the golden, but capped dark and greasy-looking, while the golden colony produced the most beautiful section honey I ever saw. Neither colony showed any disposition to swarm. These were the two finest queens I ever owned. I have purchased a good many queens from different breeders, directly and indirectly, and out of each lot some of them always proved inferior, except the lots from J. P. Moore, which always made a good average, though none of them ever came up to your red-clover queen or the one extra one from J. B. Case. All points considered, I think this Case queen the finest I ever owned; but she was an exception to most goldens.

Wewahitchka, Fla. D. R. Keyes.

[We are glad to get this good word for the Italian queens, even if it is a good advertisement for some of our friends.—Ed.]

ROBBING OUT THE BEE-TREE.

On page 155 you say that J. A. Macdonald secured no honey from the tree. Why couldn't he set his bees to robbing the stores in the tree, after all the brood emerged? In a cherry-tree near my yard is a colony I have planned to kill next fall, and then introduce a pint of my bees to bring the honey to my hive. Would not that plan work well and safely?

I like Gleanings first rate, and am so new at the business that nearly all is instructive to me, but perhaps the questions and answers are most so.

Reading, Mass. N. A. Sparhawk.

[Yes, certainly, the bee-tree could be robbed out providing there were no young bees just hatched to defend at the entrance. —Ed.]

ALSIKE; DOES IT YIELD EVERY YEAR?

Will alsike produce honey every year? If so, would not that when raised for seed with white clover, red clover, catnip, and a sprinkling of other honey-plants in the fall of the year, make a locality among the best as a honey-producing one?

Can bees be sent by fast freight in spring, with safety? O. H. Townsend says they can. What do you think about it?

Leland, Ill. F. W. Morgan.

[You can set it down as a rule that no honey-plant will yield honey every year, and the clovers are no exception unless perhaps it be the alfalfa in the irrigated regions, where conditions are largely under the control of man. Alsike affords one of the best artificial pasturages there is known. But you might sow acres of it, and still not be able to make any perceptible increase of honey in your hives; but when farmers all around you sow red clover or alsike largely, then you will be able to get some surplus. But there ought to be at least 50 or 100 acres of it within range of the bees.

If a number of colonies are to be sent at one time, by all means send by freight, fast or slow, but send a man along with them. It is not practicable to send bees by express, except in nucleus or one-colony lots. Bees go at a rate and a half, and they do not have to go very far by express before the express charges more than equal their value. There is no trouble about sending bees by freight, and that is the *only* way to ship them in any quantity.—Ed.]

HOW BUTTERFLIES INDIRECTLY DO DAMAGE TO ALFALFA.

On pages 11 and 148 mention is made of butterflies damaging the alfalfa-blossoms. While the butterflies themselves probably do a great deal of damage by sucking the nectar from the blossoms, thus depriving the bees of large quantities of honey, the worst damage is done by the worms which hatch from the eggs laid by the butterflies. They are something like the web-worm, and are very destructive here some seasons, not only eating practically all the blossoms, and so destroying all chances of a seed crop, but they also do much damage to the hay crop by eating a large proportion of the leaves. E. S. Webster.

Hutchinson, Kan., Feb. 27.

[I was sure I was not misinformed when I stated that the butterflies did damage to the alfalfa. Our correspondent explains just in what way they work havoc among the alfalfa-blossoms.—Ed.]

DYSENTERY NOT CAUSED BY CONFINEMENT; FORCED SWARMS; WHAT TO DO WITH THEM.

I notice on page 106 a case of bee dysentery which was not caused by confinement, by Mr. Henry B. Jones. Our bees were affected in the same way last spring.

Would the shake-swarm method be a good thing in this locality for increase? Do you put the "shook" swarm on the old stand, or move it away and leave the mother hive there? Would it be better to let the young bees raise their own queen or give them one? J. G. Kyle.

Velasco, Tex.

[The forced swarm is put on the old stand, while the old colony may be put a few inches to one side or on an entirely new location. It would not be practicable to put the forced swarm in a new location, as too many of the bees would return to the parent hive. As a rule, the new swarm has the queen, and the parent colony raises a queen from the cell given. But the procedure may be varied by introducing a laying queen, but no great advantage would be secured.—Ed.]

FORCED SWARMING; BEES IN PARKS, ETC.

1. In forced swarms will the parent hive as well as the forced swarm give surpluses the same season?

2. Which of the two will most likely do the better work?

3. Which should have the old queen for best results?

4. Will an inch-mesh wire-netting fence six feet from the hive-entrances, standing four feet high, interfere greatly with the convenience of the bees?

5. Would bees do well in Gordon and Wade Parks, Cleveland, where there is much shrubbery and many perennial plants?

6. Is the country east of the State Hospital for the insane, in Newburg, a good honey district?

7. If I wire my frames horizontally, and put in 3 or 4 perpendicular inch strips, imbedding them in the wires, will the bees build the rest of the comb with the midrib to the wires? and will they build all worker comb if the strips are worker foundation? Chas. R. Neillie.

Miles, O., Feb. 2.

[1. No. Surplus would be expected ordinarily, from the forced swarm only.

2. The forced swarm, if put on the location of the old hive, would gather altogether the most honey. As a rule very little honey would be secured from the parent hive, and none at all if manipulated according to the directions ordinarily given, by which all the remaining bees at a second drive are given to the swarm.

3. The swarm should have the queen.

4. No.

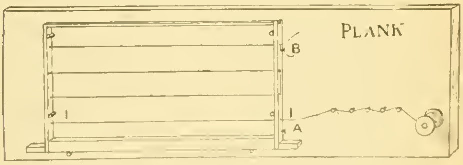
5. I see no reason why this should not be an ideal location.

6. This ought to be as good a location as any other portion of Ohio. Not knowing the locality I could not give you any definite information.

7. You can work this plan, providing it is not the season of the year when the bees are building store or drone combs. The bees would unite the several strips into one comb. But such a plan is very objectionable, from the fact that the bees would have to join on several strips of comb; and even if they were disposed to build all worker, the line of demarcation would result in irregular cells, many of them drone size. Better by far use horizontal starters, fastening to the top-bar.—Ed.]

A SIMPLE METHOD FOR WIRING FRAMES.

Having bought a lot of frames, and wire to wire them, I was lost to know just how to do it. I will give you the way I did it, which works very nicely, and the wiring-board costs nothing.



Drive ten 8-penny nails into a plank from the bottom as shown; one to hold the spool, five for the tension, and four to hold the frame. Drive two small tacks in the flat edge of the end-bar at *A* and *B*. Put the wire through the holes I, I, and draw through till as shown in the cut; then thread and tie the wire to tack *B*, and drive it up. Now tighten and secure to tack *A*, drive up, and twist off the wire.

A. P. YOUNG.

Cave City, Ky., Feb. 7.

[Your plan is very simple and good. The scheme of having nails driven in a zigzag line next to the spool is excellent, because it will make just enough friction to enable drawing the wires reasonably taut.—ED.]

FORCED SWARMS.

After having read so much about forced swarms I am prompted to suggest that there will be many novices who will make many serious mistakes in this line. In the first place, very few will know when the colony is ready to be forced, and then it is not any simple matter to get the bees in just the right condition. In my opinion a colony that is in moderately good strength should not be bothered unless there is unmistakable evidence that it is preparing to swarm. I think this forcing business is for people who have out-yards which they can not attend to; but for the average bee-keeper I think the matter of swarming should be left to the bees. I shall have about 30 colonies this spring, and shall be satisfied to clip the queens and allow the bees to do the swarming.

I think we shall have the earliest season I have ever seen. I was out in the yard yesterday, and noticed the bees bringing in pollen to a considerable extent. Will you please tell me if this is an indication that there is brood in the hive, or do they bring in pollen before the queen goes to laying? If we do not have any unusually cold weather during this month my bees should be ready to swarm by April 1, as they will have nearly two months to breed up, and they have the greatest abundance of good stores, and a few trees are beginning to bloom.

J. S. WISE.

Hazlehurst, Miss., Feb. 2.

[The question of forced swarming depends entirely on whether you want to take care of the swarming at your convenience, or have it take place on the hit-and-miss plan when you are away from home, or when you are busily engaged. From the mass of evidence that has been submitted, it seems clear now that one can, by the forcing plan, make the bees swarm at a time when it suits his convenience. While clipping queens' wings does away with climbing trees and chasing after swarms, yet if you happen to be absent the swarm will come back and try the same trick again. It may keep on maneuvering thus for several days, wasting their most precious time. My opinion is, judging from what I read, that you can not afford to let nature have her own way.

When bees go in quest of natural pollen it may be before or after they have brood in their hives. The presence of new pollen in the hives is quite apt to start the queen to laying, although the probabilities are that the queen has laid some eggs before pollen has been brought in. In our locality the queen will lay a few eggs, sometimes in February, but not usually before March. A few warm days of sunshine breaks up the cluster, with the result that the queen will lay a small patch of eggs. When the next cold spell comes on, if the cluster can cover these eggs, well and good; if not, the brood dies. Egg-laying is pretty apt to precede pollen-gathering by a good many days; but when the natural pollen does come in, it usually means settled warm weather, and the queen usually tries to make the best of the opportunity offered.—ED.]

Will you kindly tell me how to fix up a room in a barn, and about what size to have it for stores, bees, hives, etc.

EDWARD G. C. DUBOIS.

Providence, R. I., Nov. 24.

[The size of the room will depend altogether on the number of bees you expect to keep. For an apiary of 100 colonies a workshop or room 10x10 ought to be fairly ample. The room should be absolutely bee-tight—that is, if you expect to store honey in it. A self-closing screen-door should be used in connection with the regular door. The windows should be provided with bee-escapes so the bees can escape in case they get inside.—ED.]

PASTE FOR LABELS.

In making paste for labels on tin I use equal parts of hot water and honey, and dissolve enough corn starch to make a thick paste. This works perfectly.

West Bend, Wis. H. C. AHLERS.

SAMSON HIVE
CJS

The Samson hive, first used by the ancient Egyptians, afterward adopted by England as a national emb'em

Out of the eater came forth meat, and out of the strong came forth sweetness.—JUDGES 14:14.

NOTES OF TRAVEL
BY A. I. ROOT.

OUR OWN APIARY IN CUBA; THE GERMAN WAX-PRESS, ETC.

After we had been running the solar wax-extractor several days with cappings there was quite an accumulation of "slumgum"—so much, in fact, that it was a hindrance to the melted wax getting through into the wax-pans below. I spread out this slumgum and let the sun work on it one day, and it seemed so free from either wax or honey I could hardly believe it of much value. As I wanted to test the wax-press, however, I decided to see how much wax I could get out of it. Robbers are very bad about the solar machine, even if it is opened only a minute in the middle of the day. I suppose it is because the hot air from the melted honey and wax draws them by the odor, just as the burning wax does when we are bee-hunting. On this account we usually open the machine either very early in the morning or after sundown, when the bees have stopped flying. Accordingly we scraped out the slumgum just at night, while it was yet hot; and then to get the wax-press at work quickly we filled the lower part with boiling water. Then we set it over a little fire outdoors. The machine has so much heavy metal about it I told the boys I feared it would be bedtime before it all got hot enough to press out every bit of wax. To my pleasant surprise, however wax was coming from the machine in about 15 minutes, and it ran quite a stream for more than an hour. As several presses had been broken by turning too hard on the screw, I was very careful; and after we had secured much more wax than I expected to get, I decided we had got out all of any account, and let the fire go down. When we started, the wire-cloth basket was nearly full, and I presume this was rather too much for one "dose," as I discovered this morning there was yellow wax all through the remnant, and we are going to give it another "grind" to-night. I discovered that, if you turn down the screw all you think the machine will bear, in a few more minutes of steaming the screw will turn down more quite easily. When you have such a large dose in at once as we did, it takes a good deal of steaming to warm the mass clear through; and it is, therefore, best to work only a small amount at a time, as mentioned in the directions. I was not only surprised at the amount of wax obtained, but also at the *quality*. It seems to be almost as nice as that from the solar extractor. The steam extractor spoils any honey that may be in the comb or cappings, as the condensed steam dilutes it so it would be of no use, unless to make vinegar; but the solar extractor separates the honey from the wax, and makes the honey thicker; but where it runs down on the black iron bottom, the honey is of but little value unless for feeding bees. The *taste* is not bad, yet few people would care to put such dark honey on the table. It might do very well for honey cakes or "honey *gingerbread.*"

CUBAN APIARIES AND THE MEN WHO RUN THEM.

The apiaries west of Havana are either close to the calzada, or pretty near to it, for convenience of getting to and from Havana, and also to save expense in moving the honey. I have been told there are better places for bees than any that are now located, but these points are so far from the railroads and the hard stone government roads (calzadas) that it would cost more than the honey is worth to get it to market. It has already been suggested that some one try raising wax only, in these localities, and Mr. de Beche has made some experiments that lead him to think it may be made a success. Has any one tried tearing off the combs as fast as built (and before any honey is stored in them), and compelling the bees to keep building more? Of course, brood would have to have room so as to keep up the population; but has any one succeeded in making bees work for wax only? If there are times when they won't build combs without feeding, feed back the honey that gets into the combs and has to be extracted. Wax is now worth here 35 cts., spot cash, while honey scarcely nets the bee-keeper who is away from the railroads more than *two cents a pound* at the present time. I know something about what it costs to get the crop to market, for I rode on an ox-cart, loaded with honey, five miles to the station, and it took us *two hours and a half.* This was during a dry time, when the country roads were dry and hard; but during the rainy season, in some places it would be just about impossible to get honey or any thing else to the nearest station. As a rule, however, the honey-flow is all during the winter time, when no rains come, and the ground is hard and firm. Mr. Somerford's apiary is nearest Havana on the west, and Mr. Harry Howe comes next. He is described by Ernest while in York State as the "Lightning Operator." I did not see him at work with the bees, for, to tell the truth, he, and *I too* for that matter, were more taken up with his six-months-old "girl baby" than with the bees. Mr. H. has helped to cement the union between Cuba and America by taking a Cuban lady for a wife. She is, however, a native of the Canary Islands, and a very bright little woman, although she does not as yet speak much English. The baby is not only the prettiest I saw in Cuba, but she has the sweetest name to *me* in *all the world.* It is just "Susie." It is Mrs. Root's name, and I have not seen her dear old self since the day after Christmas. Mr. Howe's home is in the ruins of an old stone mansion, and there are the remains of wonderful gardens of rare tropical fruits all round it.

With the exception of the pineapple, most of the new and strange Cuban fruits are too sweet for me. I did not see much of Mr. Howe's apiaries, but he was exceedingly kind in going about with me to visit other bee-keepers whom I could not well have found without his assistance. Mr. Glenn Moe, one of the leading and most successful bee-men, has his home in Candelaria. He has three apiaries, comprising nearly or quite 1000 colonies.

During the summer some kind of shade is needed, as most bee-keepers agree. Mr. Moe has secured this in one apiary, by planting bananas. These grow up in one season, and require but little care, but they give shade in the coldest months, when shade is not needed. I presume this does not matter very much unless one wants to build up weak colonies in the winter time. To do this, no doubt a clear exposure to the sun would be better, say in December and January. Mr. Moe has also some fine looking pineapples in one of his apiaries. Leaky barrels are a great trouble, and sometimes a big *expense*, in Cuba; but I believe the barrel-makers are getting the trade now so they can stop most of it. The material is shipped here from the North, and the barrels are set up here by Cuban coopers. Mr. Moe and his boys were having some trouble with barrels at one of his places when I was there. They do not seem to think it necessary to go to the expense of using paraffine, as described in the A B C. If the hoops are heavy enough to bear very heavy driving when the barrels are hot and dry, before filling, and then heavy driving *after* the honey is in, they seldom leak much. No matter how well the barrel is seasoned before filling, the honey will take out moisture from the wood so the hoops can be driven considerably after filling.

Mr. Moe wanted to "show" me some of his nice queens before I went away. I replied I cared more for what a queen could do than what she looked like. He answered:

"That is it, exactly, Mr. Root," and then he showed me a hive three stories high, and not only boiling over with bees, but with brood in all three stories; and then he told me they had gathered something like 30 gallons of honey (if I am correct), and were still at it. I think he has decided to rear queens from such colonies, without regard to *looks* of either queen or bees. I believe Dr. Miller has been doing somewhat the same. Now, if we can have all this, and at the same time get *gentle* bees, what do we care for color? Mr. Wardell tells me that, notwithstanding all that has been written on this subject, the average customer will make a fuss if he pays for an extra queen, and she isn't large and *yellow* all over. If these people would come down here and try to raise honey for two cents a pound, they might decide differently after a while.

Mr. Powers, who has charge of the Coggshall apiaries between Mr. Moe and Mr. Howe, has only got started in Cuba, but he is getting things in very good shape.

Mr. Young, two miles and a half from Taco-Taco (Rambler's home), has only commenced; but he is quite enthusiastic, and has all his arrangements in very good shape. He purchased 25 nuclei in October, and built them up so as to take 1300 lbs. of honey from them before Jan. 1. He has taken considerable since, but I do not know how much.

I shall speak of Rambler's apiary further on, and also of the bees near Matanzas and some others.

I came pretty near passing by friend Hochstein, because, at the time I was nearest his place, the unusual rains in January had made it next to impossible to get from the calzada to his place, nine miles off toward the mountains. The worst part of it is, that no one could ever find his way amid the many branching footpaths, or, as we would call them in California, "trails," without a guide. After quite a spell without rain, along in February, Mr. Howe said we could get over there, and very kindly offered to go with me. I left my good friends the Frazers at Guanajay about daylight, and made the nine miles to Mr. Howe's in about at hour. Then we rode about two miles on the calzada; and two miles more across the lots over a pretty rough road brought us to Punta Brava, Mr. H.'s nearest railroad station.

There are several things to be encountered in getting to the foot of a mountain in Cuba or any other land. One is that an optical illusion persuades you that, just a little ahead, you will get to where it is *downhill*. But the "downhill" never comes. It *looks* down, but your wheel seems stubborn and contrary. When you turn around and try riding the other way, however, the wheel is all right, and goes very easily. Another thing is, that where there are few residents, gates or bars are used to keep in the stock. An open road would require a *fenced* road on both sides. To avoid this, gates or bars must be opened or let down whenever you cross on to another man's premises. When friend Hochstein hauls his honey to the station he has to go through *seven* different gates or bars. When I reached his place I was pretty tired; but the sight of his good wife and bright and enterprising family made me soon forget it. Friend H. has not only toward 500 colonies of bees (in one spot) all or nearly all in two-story hives, but he has turkeys, chickens, guinea fowls, ducks, pigs, and cattle. The poultry is nearly all in charge of a bright young lady they call Miss Emma. She has now about 200 young turkeys (40 old ones), and about as many chickens, besides other fowls. These all have to be driven into their respective coops and shut up every night, or they will be lost. Toward night it was my pleasure to see how it was done. Some of them had to be caught and carried back repeatedly. The chickens *would* get up in the trees, and the ducks preferred the open air on *top* of their coops instead of being shut up. After all were in she asked her father to go with her up the mountain-side for a missing hen-turkey. It made me think of the "ninety and nine." The truant was found on a nest of eggs which she and her father brought down, and "hived" in a barrel with 18 eggs. I will tell you the rest in next issue.

TWO DAYS IN CUBA.

Surely goodness and mercy shall follow me all the days of my life, and I will dwell in the house of the Lord for ever.—PSALM 23:6.

I was up before daylight, because I had a 35-mile wheelride before me, and I wanted to take as much as I could of it before the sun became so very hot. I was going out alone among strange people, and people who did not understand my speech. As I knelt by my bed on first getting up, I said: "O Lord, *thou* knowest what this new day may bring forth, but *I* do not; bless and guide my footsteps."

I told my good friend, Mr. de Beche, I could manage very well to get food and drink, but I should be very glad if he would write something in Spanish that I could give to the people when I felt the need of one of my little naps, and he smilingly gave me a note that he said would provide me what I wanted. The calzada to Güines (pronounced *Guin*-ess) is over hills for several miles out of Havana, and I found the road quite dusty near the city, so it was not so pleasant at first; but further on it is more level, and as clean and smooth as one could ask; in fact, it is one of the finest roads for wheeling I ever saw. To add to its beauty, there are great shade-trees for miles, some of them a yard in diameter, whose great masses of foliage cut off every bit of the sun's rays. Again and again I thanked God for life, health, and strength.

About half way I reached one of the apiaries belonging to Messrs. de Beche and Craycraft; and, feeling a little tired, I gave my note to the young Cuban in charge. He took me to a house near by, where the family had just taken their ten-o'clock breakfast. Of course they urged me to sit down and have breakfast too; but I had taken a lunch a mile or two back. I asked if any of the little crowd present spoke any English, but all shook their heads, and for a while I felt like a deaf and dumb man among a crowd of lively children. While the mother prepared a room for me I began using my wits to get acquainted. For a time it seemed as if every Spanish word I knew played truant to my memory when I wanted it most. I soon, however, got the children to laughing, and then we began to get acquainted. One volunteered to show me he could count "one, two, three," in English; then another, with my assistance, counted *six;* and to encourage him I clapped my hands in approval. Seeing some schoolbooks on the table I asked one after the other to read to me in Spanish. This they were proud to do, especially after I had praised the smaller ones by loving pats on the head after each reading. Then *I* volunteered to read the easy lessons in their first reader, and when the smallest reader corrected my awkward attempts at pronouncing the Spanish words their delight was complete. I thought of the Scripture words, "and a little child shall lead them." Truly a little child was leading *me;* and although I did not know it just then, the dear Savior was just in the background leading both, or, better still, leading all. I had won the children; but how should I, without speech, tell them of the "Son of God who taketh away the sins of the world"? My prayer was very unexpectedly answered. A little blackboard stood up against the wall. I have been singing Gospel hymns in Spanish at the mission meetings for several weeks past. I have partly learned the words without learning their meaning. I motioned for the chalk, and tried to write the first verse of "What a Friend we have in Jesus." I should have failed had not one of the women who had heard it somewhere come to my help. With much erasing and correcting, and with some help from the schoolmaster, who came in a little later, we had on the board:

O que amigo nos es Cristo !	What a friend we have in Jesus,
El lleva nuestro dolor ;	All our sins and griefs to bear!
Y nos manda que llevemos	What a privilege to carry
Todo a Dios en oracion.	Every thing to God in prayer !

Of course, we had only the Spanish. I have given both for the convenience of our readers. Now, please notice that, although *I* knew not the meaning of the words I had written (of course, I knew what the *whole* meant), even the smallest one knew, for it was his mother tongue. When I commenced to *sing* in Spanish, then they clapped their hands; and when their childish voices joined in with mine, correcting my faulty pronunciation, such a flood of joy and thanksgiving filled my heart it seemed for a time as if I could not bear it all. The "deaf and dumb" stranger of half an hour before was, by a miracle (it almost seemed so to me), actually leading them in singing praises to God in their own mother tongue. I almost forgot about my nap; I forgot that I was tired; but when I had taken it, and was ready to go, they all wanted me to stay longer. One of them explained by motions that, as it was downhill toward Güines, I could make my wheel go very fast. This she illustrated by making her hands revolve one around the other. I wondered greatly at their readiness to read or sing at the invitation of a stranger. Think of the contrast between these and the Sunday-school children I told you about at Bingham, Mich., last summer. Some of our missionaries here have since informed me it is characteristic of the Cubans to answer and take hold, without embarrassment.

As I sped swiftly on the beautiful road I felt very happy. When I got to the point where the road turns down from the high land into the valley around Güines, I thought I never beheld a more lovely view—

not even the celebrated Yumuri Valley, described by Humboldt.

As I came near Güines I wondered if it were possible the day could bring forth any more experiences in the Lord's work. I remember thinking, as I came into the town, I had no right to *expect* any more such opportunities or "happy surprises" in one day. Mr. de Beche said he was sorry he could not give me a letter to some one who spoke English, but he thought I would be able to get track of them when I got there. Before I got fairly well into the town I saw a card hanging before a place looking much like Mr. Frazer's mission school at Guanajay. The card read, "Iglesia Evangelica."

Surely this must mean some kind of a mission station, I reasoned, as I rapped with the big brass knocker. Almost instantly the door was opened, and a very bright little girl (see picture) said: "Bring in your wheel, please, and come in and sit down while I call mamma."

It made me think of Pilgrim's Progress; was this the house of the "Interpreter"? Come to think of it, I believe it was, but I do not yet exactly understand how it was that *I*, covered with dust and sweat, and with a dusty and muddy wheel (for it had rained on the way) should get such a reception from the minister and his wife. They are Presbyterians, and this is a *Presbyterian* mission; but I want to assure our good friend Dr. Miller (and the women-folks *there*) that it hasn't hurt dear brother Stevenson and his good wife a *bit* to be Presbyterians. In our last issue I said some pretty extravagant things about Mr. Frazer and his wife, and now I want to say that I found another couple at Güines *exactly like them*.

When the little girl opened the door and invited me in, and when I got acquainted with these two, I thought of the words, "*Surely* goodness and mercy shall follow me," etc. Mr. S., years ago, had read Gleanings, and knew at once who it was that his wife and little girl had given such a warm welcome to when they entertained a stranger "unawares." Pretty soon Bro. S. said he had just been over to see one of their people (a Cuban) who had just taken a great notion to bees. This young brother, Antonio Senti, has bought 100 hives, has the A B C book, price list, and Gleanings, and yet can scarcely read or speak a word of English. He can only look at the pictures. When told he was at the very time in a quandary about putting the hives together I proposed we go over at once and see him. I loved *him* at first sight. How could I help it when I found he was a young convert in the mission, and as zealous and full of enthusiasm to hold up the gospel as he was to learn bee culture? On the way I told Bro. S. to direct me to their best restaurant, for I had not dined except getting some crackers and coffee at a wayside grocery. He declared I should go to *his home* instead, after we had made a short call on Senti. Now, I was so taken up with this young brother I actually *forgot* all about my lack of dinner, and so did Bro. S., but I freely forgive him. When teaching those children to sing that hymn I forgot all about being tired and sleepy. Do you remember what the Savior said to his disciples after talking with the woman at the well? "I have meat to eat that ye know not of."

REV. A. WALDO STEVENSON AND FAMILY, GUINES, CUBA.

Since that exceedingly pleasant visit at the missionary's home in Güines I have secured a picture that has already been used in the *Home Missionary Monthly* (box 146 Madison Square, New York), of Bro. Stevenson, his wife, and three children, which I take great pleasure in presenting here.

I do not know but I rejoice all the more over the memory of that visit because of the fact that these people are not of my own denomination. When we are really engaged heart and soul in the Master's work, we shall not only forget to be tired and hungry, but, dear brother and sister, we shall forget whether we are Baptists, Methodists, Presbyterians, or any thing else. We shall remember that we belong only to the Lord Jesus Christ. Some time in April there is to be a conference of all the mission workers from all the different denominations that are laboring in mission work in Cuba. Oh how glad I should be to be present at such a conference! As this does not now seem to be possible, it certainly *is* my privilege to pray that the spirit of the Lord Jesus Christ may be so poured out at that meeting that all the denominations shall clasp hands as they report progress, and unite together in the bonds of Christian fellowship.

At 5 P. M. the train brought Dr. J. Milton Green, of Havana, Superintendent of the Presbyterian missions of Cuba, who gave an address at the mission in the evening. It was a great *privilege* to meet all these. As I closed my eyes in sleep in the minister's home (he would not hear of my going elsewhere—Presbyterian *too*—do you hear, Dr. Miller?) it seemed to me just *wonderful* how my prayer of the morning had been answered. Instead of being off alone among strangers, deaf and dumb, as it were, I have found friends I am sure I shall treasure in memory as long as I live; and instead of being *dumb*, why, I don't know that I ever did much more talking in one day in my life. If Mrs. Root had been along I feel pretty sure she would have cautioned me about talking *too much*.

Bro. Stevenson did not recall what I said about being hungry in the middle of the afternoon until we were around his well-filled table a little after 5 o'clock. Then he began all at once an humble apology for having forgotten to take me to his home and give me some refreshment, as he promised to do when I spoke about going to a restaurant. I assured him that he need not apologize at all, and told him that my joy in finding a young convert hungering and thirsting for knowledge, not only of bees, but of his newly found Savior, made me entirely forget weariness or hunger, as I have mentioned above. And then I remembered one of those verses which I have been reading over and over in Spanish as well as in English, in the fourth chapter of John, which shone out just then with wonderful beauty:

> Jesus saith unto them, My meat is to do the will of him that sent me, and to finish his work.

Twice during that one brief day I had caught glimpses of the wonderful truth that, when we were engaged in the Master's work, as we may be and *should* be, even fatigue and hunger vanish out of sight.

The next day it was arranged that Mr. Senti and myself were to visit Mr. Fred Somerford at Catalina, 10 miles away. The road is such we had to make it on horseback; and for the first time in 30 years I road that distance in the saddle. Dear Bro. S. had provided himself with a lot of tracts (in Spanish). I think he got them of Dr. Green, who is agent for the American Tract Society (128 Manrique St.), and he left tracts at most of the houses on the way, giving some words of encouragement with them. It made me feel ashamed of myself. Mr. Somerford was absent, and it was raining, so we sat down together on the porch and studied his Spanish testament and bee culture alternately. How could we two visit when neither knew the language of the other? Well, the memory of that day reminds me of a story I heard long years ago.

An Irishman had a habit of bragging about what a great fighter a one-armed brother of his was. At one time when he got a going on his favorite theme he said, "Why, Jemmy once killed two of the inemy entoirely, by just knocking of their heads together." When some one asked how that could be, when "Jemmy" had only one arm, he answered, "Och! but Jemmy, when he got really *a going*, *a fighting*, forgot all about the one arm, and kept on fighting just the same."

Well, Antonio and I, when we got "really a going," forgot *all about* our ignorance of the other's tongue.

I grasped more Spanish in a little while, and he more English, than I would have supposed possible. When I found it impossible to get an answer to him on some moral or religious question, I would take his Spanish testament and find some appropriate passage for him to read. A man who was cutting sugar-cane was driven in by the rain. Antonio engaged in conversation with him. Pretty soon I was appealed to; my answer was given by pointing out a passage in the Spanish testament, and it took all my Spanish, I assure you, to find the passage I wanted in a testament *all* Spanish.

Mr. Somerford finally returned, and we had a brief but very pleasant visit that I shall mention elsewhere. As it continued to rain, I discovered another very pleasant surprise in regard to Cuba. We went home on the train and took our *horses* with us. The ticket for a horse costs only double that for a man.

I wondered, as I closed my eyes that second night, if it were possible still another day could afford such opportunities as the one just passed by had brought me.

Kind Words from our Customers.

OUR GARDEN SEEDS.

I purchased the best garden seeds from you last year that I ever grew, and I should like very much to have your seed price list this spring.

Cooperstown, Pa., Mar. 1. CLYDE YATES.

THE STRAWBERRY TRANSPLANTER.

I planted 10,000 plants last spring which have grown nicely, except that the cut-worms took hold of them after they were put out, and killed them in spots. I bought one of your transplanters last fall, and filled out the vacancies with it. The plants did not seem to know that they had changed their location, but just grew right along. The transplanter does its work to perfection, and is worth a great deal more than your price for it. WM. LITTLE.

Marissa, Ill.

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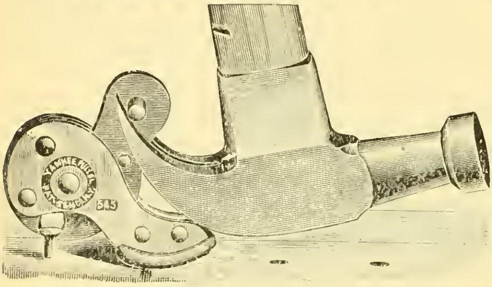
On receiving a shipment of hives or other goods, how often have you felt the need of a good nail-puller with which to open the boxes without breaking or splitting them? Such nail pullers as were effective have been beyond the reach of most people who have a box to open only occasionally. Here is something that works on the same principle as the best nail-puller, and yet is within the reach of every one. It will be worth all it costs in opening up one shipment of hives. It is nickel-plated, weighs only three ounces, and may be carried in the vest-pocket, yet it is strong enough to draw nails up to two inches. The jaws are bedded over the head of the nail; then with the hammer attached, the nail is easily drawn. The head may pull off from some cement-coated nails, and then, of course, you can not get a hold on them. Usually the grip is such as to hold the nail under the head so it is not likely to come off. Price only 25 cts. each; by mail 30 cents. A heavier size is made that will take 2½-inch nails. Price 35 cents; by mail, 40.



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Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

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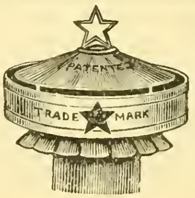
My specialty is queen-rearing. I rear two strains only—Long-tongue Red-clover Three-banded and the Golden Five-banders that work red clover as well as the three-banders These two strains are the best bees in this country, all things considered. I furnish more dealers with queens than any other breeder in this country. Why? Because the queens give their customers the best satisfaction. I insure all to be purely mated. Untested, 75c each; tested, in April, $1.25 after April, $1.00 each. My former address was Caryville, Tenn., but my queen trade has doubled for several years and I have moved to Texas. Remit by postal money order to **Daniel Wurth, Karnes City, Karnes Co., Texas.**



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FOUL BROOD MAY COME

into your apiary when you least expect it. The sooner you discover its presence, the less difficult and expensive will be its eradication. If you know exactly what to do when you discover it, much valuable time may be saved. No better instruction and advice on these points can be found than that given in a five-page article written by R. L. Taylor, and published in the February **Bee-Keepers' Review.** It is comprehensive, yet concise. The description of the disease, the instructions how to detect it, are the best and most complete of any I have seen. No one need be mistaken in identifying foul brood after reading this article.

Mr. Taylor then goes on and tells how to hold the disease in check (a very important point), prevent its dissemination among other colonies, bring all of the colonies up to the honey harvest in a prosperous condition, secure a crop of honey, and, at the same time, get rid of the foul brood.

If you wish to know how to recognize foul brood to get rid of it with the least possible loss if you wish to be prepared for it should it come, send 10 cents for a copy of this issue of the **Review.** With it will be sent two other late but different issues of the **Review;** and the ten cents may apply upon any subscription sent in within one year. A coupon will be sent entitling the holder to the **Review** one year for only 90 cents.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5 banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity from 5 to 35 miles apart, February and March, $1.00 each, or $9.00 per dozen. All other months, 75c each, $4.25 for six, or $8.00 per dozen. Tested queens of either race, from $1.50 to $3.00 each. Breeders from $3.50 to $10.00 each. 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**

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Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1.00 each; $5.00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

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A. L. Swinson, Queen-breeder, furnishes best to be had in U. S. **First-handed,** Warranted queens, $1.00. Tested, $1.50. Breeders, $5 to $10. **American Albino Italians,** and **Adels** mated to **Albinos.**

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PERFECT QUEENS

My queens took first prize at the State Fair, in Nov., 1902. I have piles of testimonials from leading bee-men to the good qualities of the queens I sent out last season. Under date of July 3, 1902, F. A. Lockhart, of Caldwell, N. Y., writes: "The doz. queens arrived all alive, and are a FINE LOT;" and again later on, "We like your stock, it is O. K."

I am adding extensively to my queen-rearing plant, breeding in separate apiaries Golden and Leather-colored Italians (both strains are red-clover workers), Carniolans, and Holy-lands, of choicest strains. My Golden stock is from one of Doolittle's choicest breeders. All my queens are raised under the best possible conditions, from extra-good honey-gatherers. Queens ordered now will be mailed when desired. Untested, $1.00, or $9.00 per dozen; tested, $1.25; a few choice breeders at $2.50 each.

GEO. J. VANDE VORD, Daytona, Fla.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs. for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

Do You Buy Queens

If so, it will pay you to investigate my claims. I breed from best honey-gathering stock, and rear queens by best-known methods. I guarantee good queens, and beautiful, gentle bees. Some of my customers have bought 100 to 300 queens per year for *their own yards.* Write for circular and information.

J. B. CASE, Port Orange, Fla.

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My bees were awarded 1st premium at the Minnesota State Fair in 1902 and 1901. Queens guaranteed in quality and transportation. In standard 8 or 9 frame hives, $5.00 each on car. A reduction on lots of 20 and over. Ready for shipment April 10.

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Send 10c and the names and addresses of ten fruit-growers to

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for a year's subscription. Regular price 50c per year. Offer good only to new subscribers. Twenty pages or more every month. If you grow any kind of fruits you can not well afford to be without it. Samples free.

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The new friction-top honey-cans have been made the standard honey-package of Texas by the Texas Bee-keepers' Assoc'n. The 3-lb. cans, 20 to a case; 6-lb. cans, 10 to case, and 12-lb. cans, 10 to case. These cans beat any package yet discovered. Write me for prices or the name of carload dealer nearest you.

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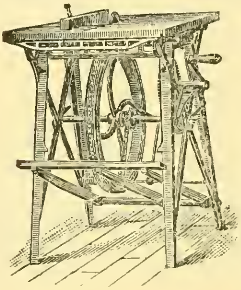

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Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

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WANTED.—Comb to render into wax; will pay cash.
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WANTED.—To exchange Angora goats for any thing useful. ED. W. COLE & Co., Kenton, Ohio.

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WANTED.—To sell thick-top L. frames, in flat, from yellow pine, at $8.00 per 1000, f. o. b.
G. F. TUCKER, Blountstown, Fla.

WANTED.—To sell or exchange an automatic gauge lathe and one broom-handle lathe Address
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WANTED.—To sell basswood-trees for spring planting. One to four feet, 10c each; 10, 75c; 100, $5.00.
G. W. PETRIE, Fairmont, Minn.

WANTED.—John, some new ginseng seed. Mine are the oldest that can be found.
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WANTED.—A young man of good habits to assist in running apiaries. State age, experience, and wages required. F. B. CAVANAGH, Galt, Mich.

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WANTED.—At once, 200 swarms bees. Will pay cash. QUIRIN, THE QUEEN-BREEDER,
Parkertown, Ohio.

WANTED.—A man to care for an apiary on shares in one of the best locations in the South. Want to increase to 500 colonies. J. B. SLONE, Slone, La.

WANTED.—To sell to supply dealers and queen-breeders list of 100 names of Idaho bee-keepers for 50c. E. F. ATWATER, Box 915, Boise, Idaho.

WANTED.—To sell 50 stocks of Italian bees, 50 patent hives, stock of tools, implements, bee-supplies, and foot-power Barnes saw at bargains; all new. Cause, lost health and use of right hand. Write.
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WANTED.—To exchange stationary gasoline-engines 1 to 10 h. p., bicycle motors, and frames for motor cycles, for wood and metal working machinery, worn-out gasoline-engines, etc.
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WANTED.—A man with small family to work a good farm of 40 acres, and an up-to-date apiary of 200 colonies, on shares; or can work the bees without the farm. A very good chance for the right man.
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WANTED.—To sell or exchange for bees or supplies one McCormick corn-shredder, been used one week, just as good as new; and one McCormick corn-harvester, been used two seasons.
C. L. PINNEY, LeMars, Iowa.

WANTED.—Man, either married or single, to work on farm by month or year. Must not use tobacco, drink or swear. Give references, state age and experience.
C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.

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WANTED.—To sell sweet potatoes; choice seed; best varieties. Send for descriptive price list.
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WANTED.—To exchange for bees, parlor talking-machine, nearly new, with some sixty records.
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WANTED.—Every one interested in GOOD ROADS to read the catalog of the Electric Wheel Co., of Quincy, Ills. Mention GLEANINGS.

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WANTED.—By the year, a steady young man to take care of my bees and work in the greenhouse or garden at spare time.
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WANTED.—A reliable man to care for 140 colonies of bees (run for comb honey) on shares or for wages. References asked for and given.
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WANTED.—To exchange a genuine Stradivarius violin 150 years old, foundation-mill, bone-mill, shotgun, revolver, clothes-wringer, game roosters, and fox-hound pups. ELIAS FOX, Hillsboro, Wis.

WANTED.—A position in an apiary on the Pacific Coast by an experienced bee-keeper. Ten years experience in Texas and Indiana. Make offer of wages; give location of apiary and time help is needed. F. R. ROE, Jordan, Ind.

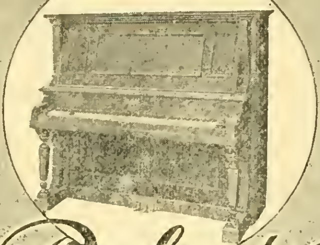
WANTED.—Customers to send for my booklet describing my Rhode Island Reds, Light Brahmas, and Barred Rocks; hardy, prolific, farm-bred, pure stock from which I sell the eggs to hatch at 6 cts. each.
WALTER SHERMAN, 100 Boulevard, Newport, R. I.

WANTED.—Experienced bee-man to take charge and run about 300 colonies; steady place for right party. State experience, reference, and wages wanted. WALTER L. HAWLEY,
R. F. D. No. 2, Fort Collins, Colorado.

WANTED.—Every reader of GLEANINGS IN BEE CULTURE who has even an orchard or garden should send to the *Southern Fruit Grower*, Chattanooga, Tenn., for a copy of their paper. It is full of interesting news of the fruit world, and very helpful.

WANTED.—To sell an apiary of 25 colonies of bees, in good condition; also a lot of supplies consisting of 125 hives in the flat, 50 hives made up and painted, 50 supers, 2000 sections, a foot-power saw, honey and wax extractors. Will take $80.00 for the entire outfit, worth $300; must be sold. The apiary and supplies are located at Delhi, Jersey Co., Ill. For particulars address H. D. EDWARDS, Sapulpa, Ind. Ter.

WANTED.—To sell, on account of blindness, 100 colonies of honey-bees in lots to suit purchaser, in single or double walled hives. Or the entire plant consisting of the above bees, extractor, smoker, queen-excluder, honey-boards, bee-escapes, extracting-combs, second-hand bee-hives, etc. Apiary established 23 years. The good will and trade included. Five minutes' walk from railroad station.
CHAS. FAVILLE, South Wales, N. Y.



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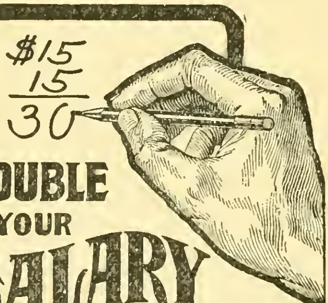

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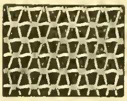

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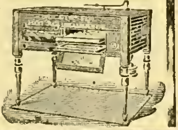

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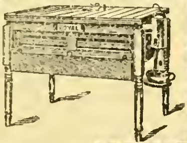

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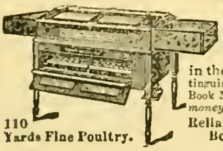

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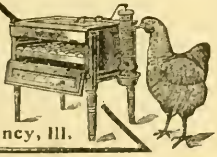
$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.



GEO. H. STAHL, Quincy, Ill.

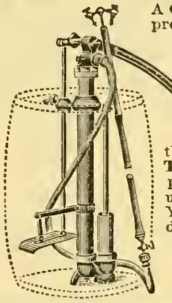
BUILD YOUR OWN INCUBATOR,
we sell complete illustrated plans by which a 200 EGG HOT WATER INCUBATOR can be built for about $8
We furnish Lamps, Tanks, Regulators, etc., at cost. Big money building and selling them. Write to-day for particulars and FREE circular "How to Make and Save Money with an Incubator."
Channon, Snow & Co., Dept. 139 Quincy, Ill.

SPRAY = PUMPS

Save Money by Buying One of Ours.

They will do as much work; being all brass, are lighter to handle, and are more durable; will generate a higher pressure, thereby making them the easiest pump to operate on the market. Write for catalog, and get treatise on spraying, free. Agents wanted. **J. F. GAYLORD,**
Succ. to P. C. Lewis Mfg. Co., Box 66, Catskill, N. Y.

Get the Best



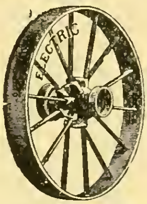
A *Good* Spray Pump earns big profits and lasts for years.

THE ECLIPSE is a good pump. As practical fruit growers we were using the common sprayers in our own orchards—found their defects and then invented **The Eclipse.** Its success practically forced us into manufacturing on a large scale. You take no chances. We have done all the experimenting.

Large fully illustrated Catalogue and Treatise on Spraying—FREE.

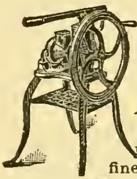
MORRILL & MORLEY, Benton Harbor, Mich.

Wagon World Awheel.



Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down **Handy Wagon** to use about the place? We will fit out your old wagon with **Electric Wheels** of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalogue. It is free.

Electric Wheel Co., Box 95 Quincy, Ills.

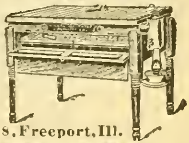


WILSON'S
New Green Bone, Shell and Vegetable Cutter for the Poultryman.

Also **Bone Mills** for making phosphate and fertilizer at small cost for the farmer, from 1 to 40 horse-power. Farm Feed Mills grind fine, fast and easy. Send for circulars.

WILSON BROS., Sole Mfgrs., Easton, Pa.

YOU'RE LOOKING for just such a machine as Miller's new **Ideal Incubator,** the perfect hatcher, sent on **30 days' trial.** Absolutely automatic. Test it yourself. Big poultry and poultry supply book free.

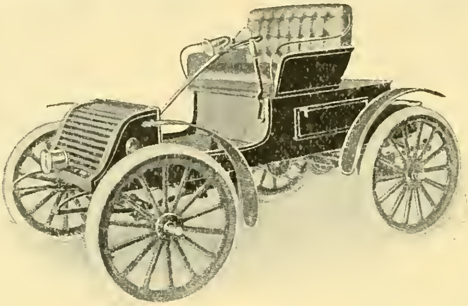


J. W. Miller Co., Box 48, Freeport, Ill.

BUCKEYE INCUBATOR CO SPRINGFIELD OHIO
$5.00 50 $9.50 100 $15.00 200 EGG SIZE $ 4.500.00 IN PREMIUMS CATALOGUE [illegible] CTS
SELF REGULATING 30 DAYS TRIAL AUTOMATIC MOISTURE

$750 HYDRO CARBON

Capacity:
100-mile
Gasoline-tank.



Capacity:
300-mile
Water-tank.

Weight 940 lbs; seven-horse power actual. Will run at any speed up to 25 miles per hour, and climb any grade up to twenty per cent. For catalog, address

Friedman Automobile Co.,
3 East Van Buren St., Dept. B, Chicago, Illinois.

The Test of Time

not only proves the increasing popularity of plain sections and fence separators, but the superiority of these supers for the production of comb honey over other styles. The use of Root's Hives with plain sections and fence-separator equipment mean

Larger Crop,
Less No. 1 and 2 Grades,
Satisfied Merchant,
Increased Sales,
More Fancy Grade,
Better Price,
Enthusiastic Customers,
Greater Profits.

and a **ready market** the coming season, which is one of the important factors in the building-up of a home market for honey. It is one thing to dispose of a fair grade of honey at a moderate price, but quite another to retain the good-will of the merchant handling your honey. To secure this co operation and stimulate the trade, great care should be exercised as to the attractiveness of the honey offered. It should not only be "Fancy," but the honey should be well capped, and put up in neat shape. To obtain these results you should use Dovetailed hives and supers equipped with plain sections and fence separators. Insist on Root's make and you will not be disappointed.

The A. I. Root Company, Medina, Ohio.

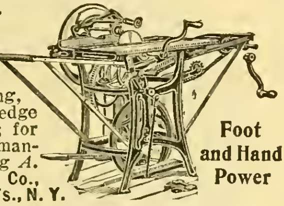
N. B.—If you are not posted as to where you can buy Root's Goods advantageously, write us. Ask also for catalog of Bee-keepers' Supplies and specimen copy of Gleanings.

WINTER
IN
California.

Sunshine and summer, fruit and flowers all winter long in California. The quick way to get there is via the Chicago, Milwaukee, & St. Paul, and Union Pacific line. Three through trains, Chicago to San Francisco, every day.

F. A. MILLER, Gen. Passenger Agt., Chicago.
E. G. HAYDEN, Traveling Passenger Agent,
217 Williamson Bldg., Cleveland.

Wood-working Machinery.



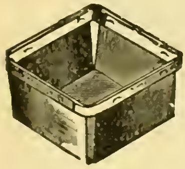
For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.

Foot and Hand Power

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Fruit Packages of All Kinds.

—ALSO—



BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

A NEW STRAWBERRY.

MARIE
STRAWBERRIES

Estimated yield 700 bu. per acre. Netted $400.00 per acre for us. Beautiful, round as an orange, large, good quality. 75 other varieties. Many new Raspberries, Blackberries and other fruits, especially some new apples. Our new Catalogue tells all about it. Sent free.

W. N. SCARFF,
New Carilsle, Ohio.

200 EGG INCUBATOR $8

By our new plan you can secure our **NEW IDEA INCUBATOR** at nominal cost. Double Walls, Removable Trays, Nursery Copper Heater, Improved Tank, Safety Lamp, Regulator. We Can Save You Money Write for FREE Circular Address

NEW IDEA INCUBATOR, Box 139 QUINCY, ILL.

GREAT POULTRY BOOK

My 1903 catalogue. Elegant in illustration, full of practical hints, describes 56 breeds of prize winners. Low prices for birds and eggs. Book postpaid, 10 cents. Calendar for 1903 on cover.

B. H. GREIDER, RHEEMS, PA.

When You plant Your Potatoes

Be SURE that every row is well planted from end to end, every hill full count, every piece of seed in **MOIST** soil It makes all the difference between a big profit and a small one.

$1 Acme Hand Potato Planters

Take care of just that same profit; they plant cheaply, easily and you are always sure that the work is done just right.

POTATO IMPLEMENT CO.
2 Catalog free. Traverse City, Mich.

GREEN RAPE costs 25 cents per TON!

Greatest, Cheapest Food on Earth for Sheep, Swine, Cattle, etc.

Will be worth $100 to you to read what Salzer's catalog says about rape.

Billion Dollar Grass

will positively make you rich; 12 tons of hay and lots of pasture per acre, so also Bromus, Peaoat, Speltz, Macaroni wheat for arid, hot soils, 63 bus. per acre. 20th Century Oats, 250 bus. per acre and Teosinte, Yields **100 tons** Green Fodder per acre.

For this Notice and 10c.

we mail big catalog and 10 Farm Seed Novelties, fully worth $10 to get a start.

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

NEW
STRAWBERRIES

Strawberry Plants and Seed Potatoes.

How to Grow Biggest Crops. Finest Fruit.

DESCRIPTIVE CATALOGUE FREE.

Send for it. Bargains in New Varieties.

FLANSBURGH & PEIRSON,
Leslie, Mich.

BEST SMALL FRUITS.

Standard and improved varieties of Raspberries, Blackberries, Gooseberries, Currants, Grapes, Strawberries, etc. Every plant grown and guaranteed by me. Ship only clean, vigorous, well rooted, fresh dug plants that give results. Write for late catalog.

Allen L. Wood, Wholesale Grower, Rochester, N.Y.

450,000 TREES

200 varieties. Also **Grapes, Small Fruits etc.** Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **LEWIS ROESCH, Fredonia, N. Y.**

HIGH CARBON COILED SPRING STEEL WIRE
FENCE
CATALOGUE FREE.
INDIANA STEEL & WIRE CO.
BOX 509 MUNCIE, INDIANA.

100 BASSWOOD or LINDEN, $2.00

Prepaid to any address in the U. S. This is the tree that bee-keepers have long wanted. We have a big supply of 6x12 inches, and will bill all orders promptly as above. Easy and fast growers. Basswood blossoms make the most and best honey. Order as many as you want, but not less than 100. Offer good for spring of 1903 only.

Evergreen Nursery Company, Sturgeon Bay, Wis.

BURPEE'S SEEDS ARE THE BEST THAT CAN BE GROWN

If you want the choicest vegetables or most beautiful flowers you should read **BURPEE'S FARM ANNUAL FOR 1903**,—so well known as the "Leading American Seed Catalogue." It is mailed **FREE to all.** Better send your address TO-DAY. W. ATLEE BURPEE & CO., PHILADELPHIA.

WHEN YOU BUY EGGS
YOU WANT GOOD EGGS
WHEN YOU BUY SEEDS
YOU WANT
GOOD SEEDS
Moral: PLANT OURS

WRITE FOR CATALOGUE.
NORTHRUP KING & CO.
SEEDSMEN
MINNEAPOLIS • • MINN.

50c SEED
DUE BILL
FREE

Send us to-day, your name and address on a postal and we will mail you FREE our handsome Illustrated Seed Catalog containing Due Bill and plan good for 50c worth of Flower or Vegetable Seeds FREE. Your selection to introduce

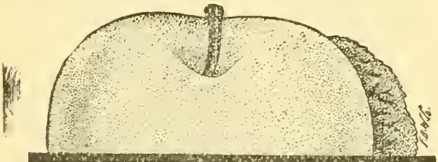
The Best Northern Grown Seeds

direct from grower to planter, from Saginaw Valley Seed Gardens. Seed Potatoes, Vegetable, Flower, Field Seeds and Plants.

100,000 PACKAGES SEEDS FREE

on above plan. Write quick. Send names of neighbors who buy seeds. $100 cash for best list. See the catalogue.

Harry N. Hammond Seed Co., Ltd.
Box 69. Bay City, Mich.



THE APPLE MAN

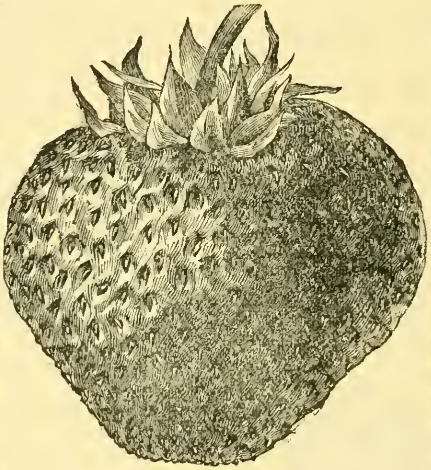
above all others is the one who needs to spray. Good, smooth, even sized, disease-free, salable apples are now an impossibility without spraying. For the apple man's use nothing quite equals our

Century Barrel Sprayer.

Submerged brass cylinder, brass ball valves, everlasting plunger packing, automatic agitator. Unequalled for durability, ease of operation, free water ways. Eighteen styles of sprayers. Catalogue with formulas and testimonials free.

THE DEMING COMPANY, SALEM, OHIO.
Western Agts., Henion & Hubbell, Chicago.

One Cent buys a postal card
which will carry your address for
Great Crops of
Strawberries
and How to Grow Them



The best book on strawberry-growing ever written. It tells how to grow the biggest crops of big berries ever produced. The book is a treatise on **Plant Physiology** and explains how to make plants bear **big berries and lots of them.** The only thoroughbred scientifically grown **strawberry plants** to be had for spring planting. One of them is worth a dozen common scrub plants. They grow **big red berries.** There is **GOLD** in strawberries and bees if you go at it right. The book tells how to dig it out. The book is sent free to all readers of Gleanings in Bee Culture. Send your address to me.

R. M. KELLOGG,
Three Rivers, Mich.

850,000 GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best Rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. LEWIS ROESCH, Fredonia, N. Y.

DEAL DIRECT WITH THE FACTORY

Don't pay retail price for carriages or harness. Write for our catalogue and learn about our system of selling direct from factory to customer. Two profits are saved to you. Satisfaction is guaranteed, or you can return the purchase and we will pay freight charges both ways. We have the largest assortment of buggies, surreys, phætons, carriages, and other high grade vehicles, as well as harness, horse rugs and other horse accessories, in America. Write for the catalogue to-day.

THE COLUMBUS CARRIAGE & HARNESS COMPANY,
Factory and General Office, COLUMBUS. O. } Write to
Western Office and Distributing House, ST. LOUIS, MO. } nearest office.

"Union" TEAM and FARM HARNESS for $16.95 Strong plump stock. **Perfect** in size, shape and finish. **Traces**, 1½ in. double & stitched. **Pads**, hook and terret. **Lines**, ⅞ in. 18 ft. **A GREAT LEADER** because it gives satisfaction first, last, and always. **Our** "Union" Harness will please you in **price** and **quality. Special**, two heavy whole leather team collars **$3**
EVERY HARNESS A BARGAIN.
We make all styles of harness.

"Union" IDEAL BUGGY for $39.95 Has no equal for **comfort, style** and wear at the price. **We guarantee** its excellence for two years. The price means quality. Has **genuine leather** trimming & **leather quarter top.** Long distance, self oiling axles. Silver trimmings. **1903 style "UNION" BUGGIES STAND THE TEST OF TIME.**

Send for Free Catalog

We guarantee safe delivery and satisfaction. NEW CATALOG free on request, **the largest vehicle and harness** catalog issued. Contains the choicest line of carts, runabouts, road wagons, delivery and express wagons, spring wagons, trucks, farm wagons, buggies, phaetons, stanhopes, surreys. Also single buggy, truck and surrey harness, express, spring wagon, farm, team and lumber harness.

CASH BUYERS' UNION, Manufacturers of Harness and Vehicles, Dept, F245 CHICAGO, ILL.

ONLY $15

High Arm 7 Drawer
Guaranteed 20 yrs
90 Days' Trial
Golden Oak
Complete Attachments

WE PAY FREIGHT

5-DRAWER $13.50

Positive four-motion double-feed, lock-stitch, automatic bobbin winder, patent stitch-regulator, self-threading throughout, self-setting needle. Handsome GOLDEN OAK, seven drawer table, with indestructible bent wood box top. Complete set of attachments, accessories and instruction book free. We prepay freight west to Miss. river and south to Tennessee. Money refunded after a 90-day trial if not entirely satisfactory. You cannot buy a machine at any price that will do better work than this one and it is thoroughly well built of best materials and handsomely finished. Needles and repairs at any time.

Send us $1 and we will ship machine C. O. D. subject to examination.

The same machine with 5 instead of 7 drawers for **Only $13.50**

Drop head machines at $18 and $16. Do not buy a machine until you get our free illustrated catalog. OHIO FARMER, Cleveland, Ohio

FOR ONLY $35.00

The Best Buggy Bargain You ever saw in your life—**Split Hickory Hummer.**

We will sell you this genuine Split Hickory, 30-oz. full rubber-top Buggy for **$35.00** and send it to you on 30 days **FREE TRIAL** that you may hitch to it and use it enough to fully satisfy yourself that you have a spendid bargain, and that every claim we make is true. On top of this free offer we give you a **two years** guarantee. We have an immense factory turning out thousands of jobs yearly, all of which we sell direct, from our factory to user, is the reason we make this **truly wonderful** buggy offer.

This buggy is made of selected second growth split hickory—split, not sawed—and is a thoroughly high grade vehicle at a low price. It has heel braces on shafts, good carpet, full rubber top, solid panel spring back, ¾-in. round edge steel tired wheels, boot on back of body, high leather dash, storm apron, side curtains, open hearth, oil tempered springs, Norway iron bolts and forgings, and many other points of merit. It is handsome and durable, and you can have your choice of oil and lead paint in colors.

NOT a cheap thing about the job except the price. Send at once for our 1-8 page, 1903 Catalogue, which gives descriptions and prices of our complete line of vehicles and harness. It is FREE.

OHIO CARRIAGE MFG. CO.
Station 2~ Cincinnati, O.

PAGE

THE CARE TAKEN

in the manufacture of EVERY FOOT of Page Fence must be appreciated by users. Our trade is growing.
Page Woven Wire Fence Co., Box S, Adrian, Michigan.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
J. T. CALVERT, Bus. Mgr.
A. L. BOYDEN, Sec.

TERMS. $1.00 per annum ; two years, $1.50 ; three years, $2.00; five years, $3.00, *in advance;* or two copies to one address, $1.50 ; three copies, $2.00 ; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

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SPECIAL NOTICE
Special Notices
By Our Business Manager.

BEESWAX MARKET.

We are paying, till further notice, 29 cents cash, or 31 in trade, for average; one cent extra for choice yellow wax.

THREE CARLOADS OF HONEY-JARS.

We have orders with two factories for three carloads of honey-jars to be delivered soon. One car of No. 25 jars and Mason jars goes to our branch in Mechanic Falls, Maine, while another car is coming here. The third car is of square jars also—Tiptop jars. We are getting in position to take care of orders for honey-jars promptly, and at the best available price.

BUSINESS BOOMING.

The orders continue to roll in in good volume, so that we are still fifteen cars behind on orders for carloads. Smaller orders are shipped with reasonable promptness within two or three days after being received. The railroads continue to annoy by delay to shipments in transit. The consequence of such delays in bee-keepers' supplies are not quite so serious now as they will be later on; and it is of the highest importance that you anticipate your wants as far in advance as possible, so as not to be without the goods when the time comes that you are ready to use them. Two per cent off for cash with order this month.

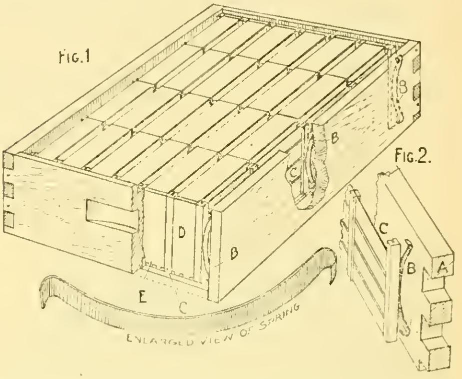
SECOND-HAND FOUNDATION-MILLS.

We still have on hand a good assortment of second-hand foundation-mills, which we list as follows. Any one desiring samples from these mills, or further particulars, we shall be pleased to supply on application.

No. 014, 2x6, hex. cell, extra-thin super. Price $8.00.
No. 037, 2x6, hex. cell, ex thin super, good. Price $10.
No. 2132, 2x6, hex. cell, thin super. Price $10.
No. 2227, 2x6, hex. cell, thin super. Price $10.
No. 045, 2½x6, hex. cell, thin super. Price $10.
No. 050, 2½x12, round cell, medium. Price $12.
No. 044, 2x10, Pelham, nearly new. Price $6.
No. 034, 2¼x12½, round cell, very old style, in fair condition. Price $10.
No. 043, 2½x14, round, medium to heavy, good condition. Price $14.
No. 051, 2x10, round cell, medium brood. Price $10.

THE NEW SUPER SPRINGS FOR 1903.

We have up until lately been using wire springs to produce the necessary compression in comb-honey supers. These were secured to the inside of the super side. There came to be a general demand for a *removable* spring, and we accordingly constructed some samples made of wire; but owing to the difficulties of manufacture, and the further fact that the tension of the wire varied considerably, we finally decided on flat steel springs of the shape and style shown in the annexed engraving. This spring is very similar to if not identical with the super-spring first used by Capt. J. E. Hetherington, of Cherry Valley, N. Y., some 30 years ago, and which, we understand, he has been using ever since. While this form of spring is a little more expensive for the material used, it is easier to make. The Root Co. is now turning out these springs by the thousand. All the 1903 supers put out by us from this date on will have these springs; and we anticipate they will be well received by the general bee-keeping public. Capt. Hetherington, who for many years enjoyed the reputation of being the most extensive bee-keeper in the world, is not apt to adopt an impracticable device; and the fact that he pronounces the principle good is pretty good evidence that the fraternity at large can safely adopt it. There are those who prefer a spring fast to the super instead of loose. By putting the spring in position, and driving a staple over one end, these may be securely fastened. A staple similar to the No. 11 double-pointed tack but a little wider is needed. We will have them soon at 20 cts. per pound.



Special Notices by A. I. Root.

I am at home again in Medina.—A. I. Root.

JAPANESE BUCKWHEAT.

Trial packet, 4 ounces, by mail, postpaid, 5c; 1 lb. by mail, postpaid, 15c; peck, 35c; ½ bushel, 65c; bushel, $1.25; 2 bushel, $2.25. These prices include bag to ship it in. Ten or more bushels, purchaser paying for bags, 95 cents.

CUCUMBER SEED LOWER.

Until further notice we can make the price of Early Frame, Improved Early White Spine, and Green Prolific or Boston Pickle cucumber seed at 15 cents per ounce, or $1.25 per lb. This is for new fresh seed, grown expressly for us.

PRICES ON CLOVER SEED AT THIS DATE.

Alsike clover, bu., $10; ½ bu., $5.25; peck, $2 75; 1 lb., 20c, or by mail, 30c.

Medium clover, bu., $9.00; ½ bu., $4.75; peck, $2.50; 1 lb., 18c, or 28c by mail.

White Dutch clover, bu , $15.00; ½ bu., $7.75; pk., $4.00; 1 lb., 30 c; 1 lb. by mail, 40c.

Peavine, or Mammoth Red clover, same as medium. Alfalfa, same as medium.

Crimson, or scarlet clover, bu., $4.50; ½ bu., 2.40; peck, $1.25; 1 lb., 10c, by mail 20c; 3 lbs., by mail, 50c.

Sweet clover, 100 lbs., 10c per lb.; 10 lbs. at 12c; 1 lb., 15c; by mail, 25c per lb. Yellow sweet clover, 6c per lb. additional. For sweet clover with hulls off, 5c per lb. in addition to the above prices.

SEED POTATOES—ORDER EARLY.

If you send in your order now you can get them without being sprouted a particle You can get exactly what you want, for our stock of firsts is all complete; and, most of all you can save disastrous delays by not getting them when you are ready to plant. Freight of all kinds, as you may know, is more or less delayed by the overcrowded condition of the railroads generally; therefore it will be better all around to get your orders in at once.

TABLE OF PRICES.

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	Half Peck.	Peck.	Half Bushel.	Bushel.	Barrel, 11 pks.
Red Bliss Triumph......	$ 18	$ 40	$ 30	$ 40	$ 75	$1.25	$3.00
Six Weeks	18	40	30	40	75	1.25	3.00
Early Ohio............	18	40	30	40	75	1.25	3.00
Early Michigan.........	18	40	30	40	75	1.25	3.00
Early Trumbull..........	18	40	30	40	75	1.25	3.00
Bovee..................	18	40	30	40	75	1.25	3.00
New Queen..............	18	40	30	40	75	1.25	3.00
Freeman	18	40	30	40	75	1.25	3.00
Lee's Favorite..........	18	40	30	40	75	1.25	3.00
Twentieth Century......	15	35	20	35	60	1.00	2.50
State of Maine..........	15	35	20	35	60	1.00	2.50
Maule's Commercial....	15	35	20	35	60	1.00	2.50
Carman No. 3	15	35	20	35	60	1.00	2.50
Sir Walter Raleigh......	15	35	20	35	60	1.00	2.50
King of Michigan......	25	50	35	50	85	1.50	3.50
California Russet......	15	35	20	35	60	1.00	2.50
New Craig..............	15	35	20	35	60	1.00	2.50

Seconds, while we have them, will be half price (for description of seconds see page 828), but at the present writing, Jan. 1, we are sold out of *seconds* except the following four kinds: Early Michigan, Lee's Favorite, New Queen, and Maule's Commercial.

A barrel can be made up of as many varieties as you choose, and they will be at barrel prices if you have a whole barrel or more.

POTATOES AND GARDEN SEEDS TO BE GIVEN AWAY.

Everybody who sends $1.00 for GLEANINGS (asking for no other premium), may have 25 cents' worth of potatoes, seeds, etc., providing he mentions it at the time he sends in the money; and every subscriber who sends us $1.00 for a new subscriber so that GLEANINGS may go into some neighborhood or family where it has not been before, may have 50 cents' worth of potatoes, seeds, etc.

You can have your premium potatoes sent by mail, express, or freight; but if you want them by mail, you must send the money for postage. For 25 cents you can have 5 lbs. of potatoes; but the postage and packing amounts to ten cents for each pound; and I do not believe you want to pay 50 cents in postage for 25 cents' worth of potatoes. As a rule, potatoes should go only by freight; 25 cents' worth is hardly enough for a freight shipment; so by far the better way would be to have them shipped by freight with other goods. The express charges on only 25 cents' worth are very often as much as the postage, and sometimes more.

OUR NORTHERN-GROWN SEED POTATOES.

The Red Triumph is perhaps the earliest potato known, but it is very apt to blight in many localities. Six weeks is a select *extra early* strain of Early Ohio. The Early Ohio is the standard early potato almost the world over; but as a rule it is not a large yielder. Early Michigan is one of the very earliest potatoes, and is almost without a fault as to quality, quantity, etc. Early Trumbull is not quite as early as the foregoing, but it is a tremendous yielder. The Bovee has made quite a sensation since its advent four or five years ago. New Queen, in many localities, seems to be the "queen" of the lot, a little later than the foregoing, but a tremendous yielder. The Freeman is the first really *handsome* potato among the extra earlies. Lee's Favorite looks almost exactly like the New Queen, but it is a little later. Twentieth Century, State of Maine, Carman No. 3, and Sir Walter Raleigh, are all tremendous yielders; and on our ranch last year in Northern Michigan they looked so much alike the boys said there was hardly a choice in the lot. Maule's Commercial stands well with the lot just enumerated, and perhaps it will outyield any of them; but it is a *reddish* potato. Whitten's White Mammoth is one of the largest yielders, and is a potato of excellent quality; but it is not as handsome in shape as the Carman No. 3 and some others. The California Russet is equal in *quality*, probably, to any in the list, and stands out sharp and clear above all, as the potato having no scab. It may not yield as well as some others, and the tubers are not quite as handsome, although they are of good shape; but there are never any scabby ones. The New Craig is certainly the latest of all potatoes, giving some of the largest crops, providing you can give it the whole season to grow in. Plant them early, and they will keep growing till frost.

COLD-FRAME OR HOT-BED SASH OF CYPRESS.

We are now prepared to furnish sash of cypress, having secured a supply of this lumber for the purpose. It is one of the most durable of woods for outside use, and is largely used for greenhouse bars and sash. It is light and strong, as well as durable. We are changing the dimensions of the bars so that they will shut off less light from the seed-bed. The thickness will be 1½ inches instead of 1⅜, as formerly, with tenons ½ inch thick instead of ⅜ inch. The outside bars are 2½ inches wide instead of 3¼. The sash will still be 6 feet long, but 3 ft. 3 inches wide instead of 3 ft. 4 inches, and, as regularly furnished, will take four rows of 8x10 glass. We can also supply them for 3 rows of 11-inch glass. The price shipped, knocked down, will be 80 cents each; $3.75 for 5, or $7.00 for 10.

We still have the old-style pine sash, 3 ft. 4 by 6 ft., which we will sell at the same price if any prefer them. At the present price of pine lumber they are worth more money, but we will close them out at this price to any who may want them. Glass, 8x10, for sash at $3.00 per box; 5 boxes at $2.85; 10 boxes at $2.70

A NEW TESTAMENT IN SPANISH AND ENGLISH.

We have just received from the American Bible Society a lot of Testaments, one column printed in Spanish and the other in English—that is, the two are side by side. I can heartily recommend this Testament as a method of learning Spanish. If you read your Bible every day—and I hope there are many of our readers who do this—with one of these English-Spanish Testaments you can also read a little Spanish every day; and you will be surprised to learn how soon the Spanish words will become familiar to you Of course, few will undertake this unless they are in localities where Spanish is largely spoken. I hope the bee-keepers of Cuba will all provide themselves with such a Testament; and I know by experience that in California, Arizona, Mexico, and many other parts of the great West, a little Spanish is a great benefit; and I know, too, from experience, that it is a wonderful privilege to anybody who loves God's holy word to be able to get it in another language than his own. The mental exercise, and the real honest enjoyment that I get out of my Spanish-English Testament, have been worth to me a hundred times what it cost. The books are billed to us by the American Bible Society at just 25 cents each, which we sell them for. If wanted by mail, add 9 cents for postage. As an incentive to young people to take up the study of Spanish, permit me to mention that a shorthand writer who can read, write, and speak English and Spanish, can command in Havana from $125 to $150 per month. A book-keeper who is conversent with both English and Spanish can command from $75 to $100 per month. I hardly need mention that this book will be equally valuable to Spanish people who are learning English; and I wish our American friends would present the matter to their Spanish neighbors. Just think of it dear friends—at the same time they are learning our language they will be getting a knowledge of the word of God that will raise men out of darkness and into the light.

CONVENTION NOTICES.

The Northern Michigan bee-keepers will hold a convention, March 25 and 26, in the town hall, at Bellaire, Antrim County. Special rates have been secured for entertainment at the Ellis House and the Bellaire House, at $1.00 per day. A. I. Root expects to be present, and give a talk on Cuba.

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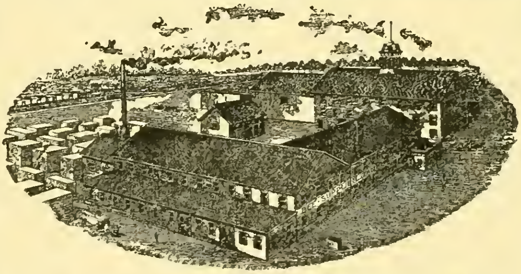
The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



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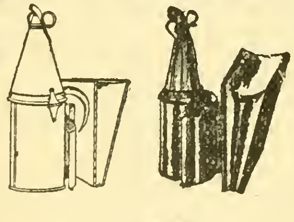

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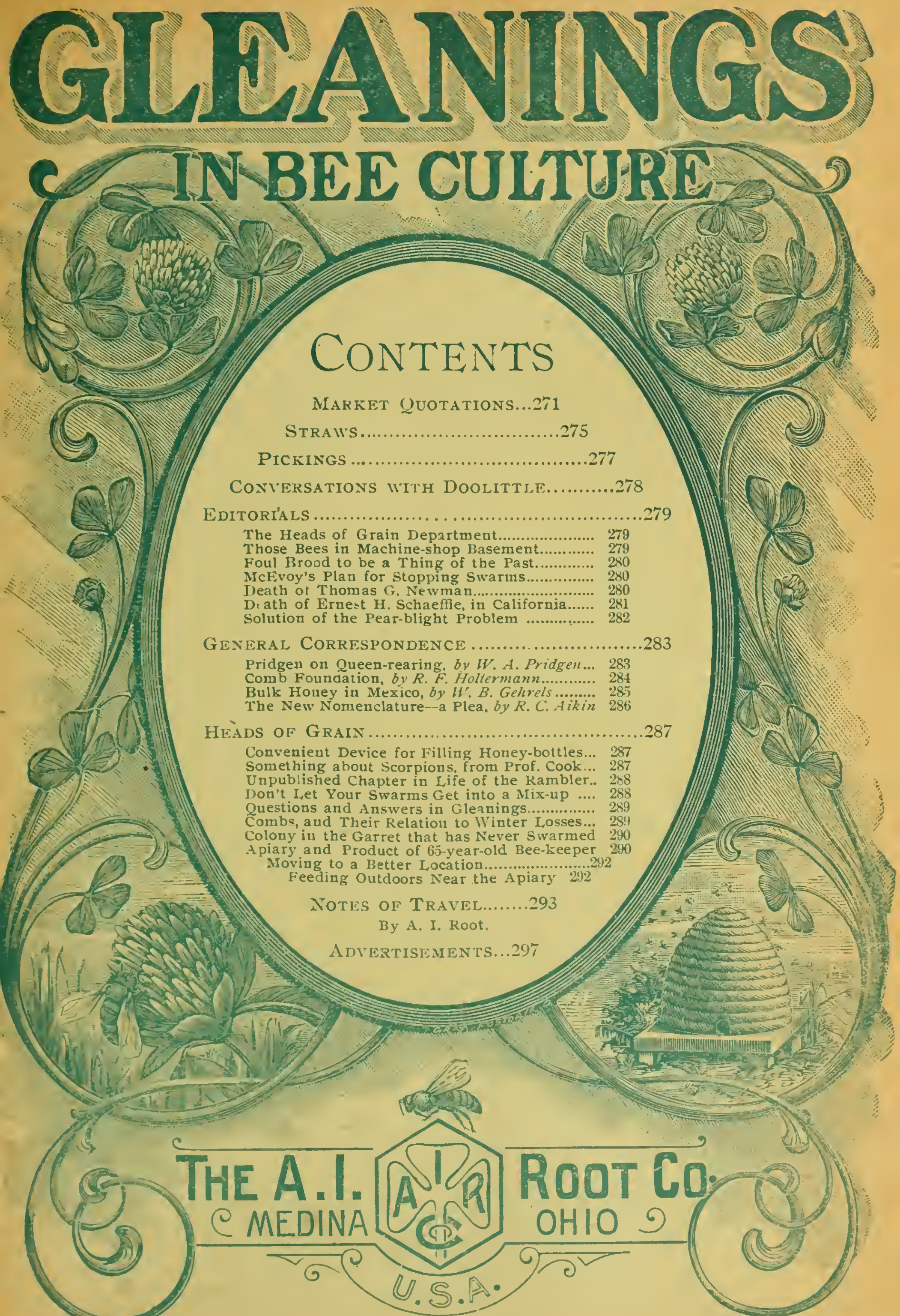
Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch. $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI APRIL 1 1903 Number 7

GLEANINGS IN BEE CULTURE



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are headquarters for the State, and furnish local associations who can use as much as a carload at carload prices direct from the factory, or smaller lots from our well-furnished warerooms in Denver, at prices that defy competition for equal quality of goods. We are agents for The A. I. Root Company's Goods for Colorado, and want to hear from bee-keepers in need of supplies. We buy honey and wax.

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We have the largest stock of Root's goods that ever came to Kansas, and we are ready to supply your needs in the apiary. We can save you freight and time by buying of us.

Danz. Hives, Weed New Process Foundation, Cowan Extractors, Smokers,

and every thing that you will likely need. We are now booking orders for Buck's strain of Italian queens. Last year we were swamped with orders in the spring, so I wish to ask my customers to send in their orders early so as to avoid the rush. Send for 1903 catalog. The 1903 edition of A B C of Bee Culture for sale.

Carl F. Buck, Augusta, Kansas.
Butler County.

Announcement!

We desire to call the attention of all bee-keepers in Washington, British Columbia, and adjacent territory, that we're now the Northwestern agents for

The A. I. Root Company,

and are prepared to furnish from stock here, and at other Washington points, any thing required by bee-keepers. Send your specifications early. If we do not have the goods wanted this will enable us to get them in our next carload. Catalogs free.

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Northern-grown Seeds, Trees and Plants, Poultry and Bee Supplies, Spray Pumps, Fertilizers and Garden-tools.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. I Dark," etc.

Milwaukee.—The honey market remains about the same. Receipts have been more liberal, and a corresponding demand has not caused much increase of supply in the hands of merchants. The demand is not active for either extracted or comb. We quote: Fancy 1-lb. sections, 16@17; No. 1 ditto, 15@16; old or dark, nominal, 8@13. Extracted in barrels, cans, or pails, white, 8@9; amber ditto, 6@7. Beeswax, 28@30.

A. V. Bishop & Co.,
March 21. 119 Buffalo St., Milwaukee, Wis.

New York.—The supply of comb honey is more than sufficient to meet the demand. We quote: Fancy, 14@15; No. 1, 12@13; buckwheat, 10@12; extracted, 5@8½. Beeswax, 32, and scarce.

Francis H. Leggett & Co.,
Mar. 23. Franklin and Varick Sts., New York.

Denver.—The demand for comb honey is slow, and prices have a downward tendency. We quote: No. 1 white comb honey, $3 00@$3.25 per case of 24 sections; No. 2, $2.50@$2.75. Extracted, No. 1 white, 7½@8⅓. Beeswax wanted at 22@28, according to quality.

Colorado Honey-Producers' Ass'n,
March 24. 1440 Market St., Denver, Col.

Boston.—Our market continues firm with a decreasing demand. Fancy No. 1 stock in cartons, 16; A No. 1, 15; No. 1, 14½; No. 2, 13½@14. Extracted, 7@8½.

Blake, Scott & Lee,
March 12. 31, 33 Commercial St., Boston, Mass.

Detroit.—Fancy comb honey, 16; No. 1 dark, 12@14. Beeswax, 28@30. Very little honey in the city, and that in the hands of the retailers. Demand fair.

March 19. M. H. Hunt & Son.

San Francisco.—Comb honey nominal. Extracted, water-white, 7; light amber, 6½; dark amber, 5. Beeswax, 28.

March 12. E. B. Schaeffle, Murphys, Cal.

Albany.—Honey market quiet with good demand and light receipts in both comb and extracted. Season is about over, and well cleaned up for another season. Beeswax wanted at 30.

MacDougal & Co.,
March 21. 375 Broadway, Albany, N. Y.

Philadelphia.—The season for comb honey is now nearly over, and very little call with some few sales. There is a large lot held back, this being offered at low prices, and market is a little weak. We quote fancy 14@15; No. 1, 14; amber, 12@13. Extracted fancy white, 7@8. Beeswax, 30, and in good demand. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
Mar. 23. 10 Vine St., Philadelphia, Pa.

Chicago.—The trade is of small volume, with little change in prices of any of the grades. Choice white comb sells at 15@16, with other and off grades slow at 2 to 5 cts. less. Extracted, 7@8 for white, according to kind and flavor. Dark grades, 5½@6½. Beeswax, 30.

R. A. Burnett & Co.,
Mar. 21. 199 South Water St., Chicago, Ill.

Wanted.—Fancy comb honey. State what kind you have, how put up, and price per pound.

C. M. Scott & Co.,
1004 E. Washington St., Indianapolis, Ind.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

For Sale.—We are sold out on alfalfa honey, but have ten 350-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls fancy basswood at 8c; 60-lb. new cans, two in a case, 9c. E. R. Pahl & Co.,
294, 296 Broadway, Milwaukee, Wis.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. Seavey & Flarsheim,
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Mr. G. M. Doolittle indorses the *Observatory hive.* He writes: "I have used an observatory hive for years, and find it of great interest to ordinary persons. Bee-keepers can learn much from their use, and I always advise them to have one."

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Convention Notices.

ANNOUNCEMENT.

Bee-keepers of Missouri will meet in convention at Moberly, in the Commercial Club rooms at 2 o'clock p. m on the 22nd day of April, 1903, to organize a Missouri State Bee-keepers' Association We expect to complete our organization on that day and have some bee talks the next day following. Everybody is invited who is interested in bees and honey. Let us have a good turnout and a good time. Good hotel accommodations can be had at $1.00 and $2.00 a day. The Monitor Printing Company will tell you where the Commercial Club rooms are located.

W. T. Cary, Acting Secretary.
Wakenda, Mo., March 18.

The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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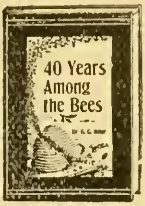

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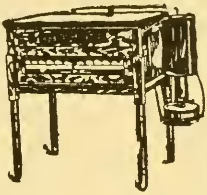

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Gus. Dittmer, - Augusta, Wisconsin.

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No trouble in setting them up.
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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly.

Published by THE A. I. ROOT CO. $1.00 PER YEAR MEDINA, OHIO.

Vol. XXXI. APR. 1, 1903. No. 7.

Stray Straws

By Dr. C. C. Miller.

STAPLE-SPACED frames don't go in this country except for end-spacing. Perhaps the right kind of spacers would go better than staples. In Europe, nails with heads of such thickness as to be driven automatically to the proper depth have been regularly quoted in price lists for years, but you can't get them in this country.

A LITTLE KINK that I don't remember seeing in print may be worth mentioning. When bees will not be easily shaken or pounded off a comb, and you don't care to get a brush, try this: Hold up the frame with the left hand by one end of the top-bar, and while thus suspended pound on the top of the top-bar near the other end with the ball of the right hand; then reverse ends and pound again.

WHAT YOU SAY, Mr. Editor, p. 242, raises the question, "Under what circumstances would you advise shipping comb honey by express rather than freight?" [In my next to the last paragraph I intimated what those circumstances might be. The great bulk of comb honey goes by freight because express is too expensive. But honey may be shipped by express when the distance is short and the weight light.—ED.]

"THERE IS NO trouble about sending bees by freight," and "it is not practicable to send bees by express, except in nucleus or one-colony lots," p. 246. But unless rulings have changed, you can't send bees by freight except in car-lots on some roads. [Many roads will take less than a carload of bees by freight if prepaid and at owner's risk. Railroad companies do not like to take perishable property like bees, and undertake to get them to destination in good order unless the freight is prepaid or a man goes with them to see that they are properly cared for. No charge is made for carrying the man who takes care of the bees.—ED.]

FRIENDS, please don't get to quarreling whether swarms should be shaken before or after queen-cells are started. What's right for one may be wrong for another. In my own case I wouldn't think of shaking in the home apiary till cells were present. In an out-apiary with a small number, where I wished to limit the number of visits, I'd shake 'em all when it suited me, cells or no cells. [We must be governed by conditions. —ED.]

PROF. F. C. HARRISON, of Canada, has an article in the French bee journal, *Revue Internationale*, in which he gives a table, evidently prepared with no little care, comparing the characteristics of *B. mesentericus vulgatus* (Fluegge), *B. mesentericus* (*vulgaris?*) (Dr. Lambotte), and *B. alvei* (Chesh. and W. Cheyne). He thinks the identity of *B. alvei* with the more common form is far from being proven. It will be a relief to believe that it is not possible for a microbe existing everywhere to assume at some inauspicious moment a form that we so much dread.

AS I READ what you say in last GLEANINGS, Bro. A. I. Root, I can't help heartily wishing you were here. Every night for a month you'd see all the pastors of Marengo on the same platform in the tabernacle in the most perfect harmony, while Evangelist W. A. Sunday preaches to an audience sometimes numbering more than a thousand. After he has talked for an hour and a half in a perfect torrent, it seems only the length of an ordinary sermon. If he ever preaches within a hundred miles of Medina it will pay you to go and hear him. If you'll come while he's here, Mrs. Miller will let you have that north room to nap in all day long. [That north room is most delightful. I always sleep soundly at the Miller home.—ED.]

ILLINOIS bee-keepers, don't fail to write at once to your law-makers about that foul-brood bill if you haven't already done so, unless you can do as I did, button-hole your man when he is at home and get him to promise the right thing. [Yes, yes! No bill can be passed unless the representatives can be made to feel that their constituents want the measure. Besides bee-keepers writing themselves, they should go to influential men and politicians in their vicinity, and get them to write to their Senators or Representatives, or both. One who has a little "political pull" will have ten times as much influence as one who has little or nothing to do with politics.—Ed.]

G. C. Greiner is a practical sort of man, but I couldn't puzzle out how he moves 40 per cent (not 4 per cent, as the types make it) of his hives in straight rows so as to get them in close rows of five each, although I worked on it for some time with pieces of paper numbered. Then when I got to the footnote I was as badly puzzled to understand how the editor could easily get his group of five hives into a straight row. But there is this probable difference in the two cases: Friend Greiner has done his (even if I can't), and the editor has never tried his. [Why not have a group of five hives in a row if you want them? What is to hinder? You can have five in a straight row in a group as easily as you can have three. Yes, I have tried the plan outlined. You must have got a wrong idea in your head some way.—Ed.]

Ye editor explains, p. 244, how 75 cts. per colony is cleaned up by having shallow frames and feeding sugar at the close of the season. I wish H. R. Boardman would tell us whether he can or can not clean up as much with deeper frames and feeding sugar before the beginning of the season. [But you are introducing a new condition. I was not talking about feeding before the harvest, but of the relative difference between deep and shallow frames. both sets of frames to be treated exactly alike, except in the matter of feeding afterward. Any colony on deep or shallow frames will produce more comb honey, especially if the season be short, if the brood-nest is filled with sugar syrup so that new honey, when it does come in, will have to go into the supers direct. If we are going to make comparative tests, the conditions under which each one is made should be exactly the same prior to the harvest.—Ed.]

Wilmon Newell has blazed a new track by coming out plainly on p. 241 and condemning that nonsense about an umbilical cord in queen-cells. I don't know whether our scientific men think it beneath their dignity, or whether they're afraid of getting into trouble by it, but it seems to be a rule with them never to say a word against any glaring error, unless it comes from some other scientist. Rev. W. F. Clarke said bees dropped poison from their stings into honey, and used their stings as trowels to work wax, and I don't remember seeing a word against it from any scientist. Prof. McLean said he fertilized queens by hand, and no one had the backbone to challenge the statement. So I take off my hat to the Texan entomologist. But when he says he strongly suspects that Dr. Gallup *has* discovered a food-carrying tube, I suppose it may be permitted one of the laity to strongly suspect that nothing at all has been discovered that was not known before. [Mr. Newell is the right man in the right place. He is one from whom we shall hear more later. Besides having a scientific training, he is intensely interested in bees. Ed.]

Your plan of stealing a march on an obstreperous colony, Mr. Editor, p. 241, by grafting their queen-cells with choice larvæ, is good. You may save a week's time over that plan if you happen to have a young queen just hatched. Here's what I *think* is true: A young queen just out of the cell, if she has not been imprisoned in the cell by the bees, will be kindly received in *any* colony, no matter whether it has a laying queen, laying workers, or what not. If the colony has a satisfactory queen, this young queen will be killed as soon as she is old enough, perhaps when a day or so old; but in all other cases she will assume control. [I know a young queen just hatched will be more readily accepted than one a few hours old; and when introducing virgins we also prefer to have them when they are downy, young, and somewhat feeble. They then seem to elicit the sympathy of the bees, which immediately go to caressing. But, doctor, if I remember correctly, I tried to give to the obstreperous colony to which I referred a young virgin as well as cells. But they had their dander up, and proposed to do things in their own way. The handling of the virgin possibly gave the scent of a human being to her, and that was sufficient reason to kill her, and they did instanter.—Ed.]

You say, Mr. Editor, p. 224, you have seen stings lodged in the body of a balled queen. Yes, you have seen a queen stung to death that had been in a ball. But did you ever see a queen stung *while* she was in the ball? I don't know, but I *think* a queen is never stung while she is in the ball, and I much doubt the physical possibility of such a thing. If the bees sting a queen while in a ball, why should they leave her unstung an hour or more before giving her the fatal stab? Did you ever know a queen to be stung in a ball if the ball was thrown into cold water? Weren't the cases in which you saw the queen stung those in which you poked or smoked the bees away from the queen enough so that one of them could sting her? Left entirely to themselves, do you believe the bees could sting a balled queen if they would? Do you believe they would if they could? In a case in which you have not found the balled queen till she was dead, did you ever find that such a queen had been stung? Your reasoning as to the improbability of a queen being suffocated in a ball is all right. [I do not see how it is possible to know whether the queen is stung when she is in the ball. But I remember once pulling a ball to pieces and finding the queen almost lifeless, with a sting in her side. Possibly she was stung before she was balled. It is true that, when the bees ball a queen, the tails are out and the heads in, as if they were trying to get hold of her and pull her to pieces. We have had one queen crippled by having one and possibly two legs pulled off. After her experience she would fight any bees that showed fight, and we could introduce her to any hive. She was a regular tartar. We used to pick her up and give her to a queenless colcolony. They would pitch into her, but she would meet the onslaught. We would close up the hives, and in a few days she would be laying as serenely as ever. The trouble with average queens is, they will throw up their legs in utter helplessness, and squeal; and that is enough to make almost any bee enraged.—Ed.]

After talking about some changes that should be made regarding N. B. K. A. affairs, page 225, you say, Mr. Editor, that "the time to talk about this matter is not now, but some three or four months before the next election." I don't know, I don't know. I don't believe we'd get any too much light upon it if we began right now. [But is it not true that bee-keepers are tired of this? Would it not be a relief to drop the least suggestion of our old troubles for the time being, then when cool sober judgment reigns supreme we can discuss this matter better? If we go to talking publicly about the constitution now, *we* shall discuss it all summer; and I am sure we will disgust most of our readers, who do not know any thing about the constitution, and care less. Members of the National Association constitute but a small percentage of the subscribers of the average bee paper, and there is probably not over a tenth of the membership itself that will be interested even then. The place to discuss this is in committee, or by actual correspondence *among those who are interested*, or are by experience competent to advise; then when the crude ideas are evolved into something tangible, present it to the readers of the bee papers next fall. There is another thing: If we go to discussing the constitution now we shall put too much emphasis on those features of the old constitution that were the cause of "our late unpleasantness," and very likely some other important things that may lead to future trouble will be slurred over or omitted. I am firmly convinced that bee-journals are not the place to discuss constitutions — at least just now. But I would agree with you that the Board of Directors and the Executive Committee should take the matter up immediately, for it will take time to carry this thing through by correspondence.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

The following beautiful and graceful tribute to the memory of the Rambler comes from my friend Dr. Frederick Webley, of Santa Rosa, Cal. I have never seen the doctor, but I call him "friend" on account of some pleasant correspondence from him. He will be remembered as the author of "The Humming of the Bees," page 652 of last year.

Good by, Rambler!
Oft have we fared together,
In pleasant and in stormy weather—
You with one constant quest in mind,
A land of honey and a home to find.
Lost are the tales, the lore you had to tell,
Of nature and the craft you loved so well.
Good by.
On this last ramble, fare you well;
Where you have gone, no longer need you roam.
There is the land of promise and of home.

* * *

There is to be a great international apicultural exposition in Vienna, Austria, beginning April 4, and lasting till the 26th. Every thing pertaining to bees that can be found by ransacking the different countries of Europe will be on exhibition. It is under the auspices of the Emperor Francis Joseph, one of the most liberal and progresive rulers of Europe. His wife, who was murdered two years ago in Italy by an anarchist, was a very active friend of all that pertained to the welfare of her people. It is a pity we can not have a Dadant or a Miller to make a report for us, for it will doubtless be a very interesting affair.

* * *

Since giving the names of the principal bee journals published in French and German, I have found the following additional ones, most of which do not come to this office. It is really surprising to see what a vast literature the bee has gathered around itself.

Bienenvater aus Boehmen, Tetschen, Austria.

L'Abeille et sa Culture, Ampsin, Belgium.

De Bieenvriend, St. Ghislain, Belgium (Dutch).

Die Bie, *Herenthals*, Belgium (Dutch).

Abeille de l'Aisne (French), address unknown.

Bulletin de Rucher des Allobroges, address unknown.

L'Abeille Luxembourgeoise, French.

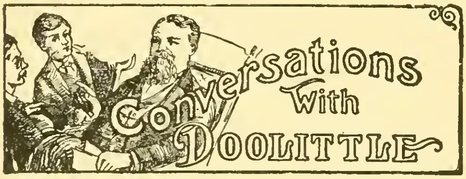
L'Apicoltore, Milan, Italy. This last is one of the greatest and best bee journals published in any land.

Swedish Bee Journal, Jampoking, Sweden.

I was just about to express a regret that Russia was not represented in bee journalism when a fine sample of what I wanted was laid on my desk. It is called *Pchelovodnie Listork.* The Russians still use the Greek alphabet, thus causing their books to have a very strange appearance to us. The kindred people, such as Poles, Bohemians, and Slavs, use the common Roman letter, but the Russians still use Greek. This is all caused by the latter being Greek Catholic and the others Roman Catholic. But Russia is fast forging to the front, and now has at least one bee journal that, in outward appearance at least, is equal to any published.

By the way, a Mr. Titoff is working in this establishment at the present time, and will spend about two years here in learning all he can about bees and hive manufacture. He is an accredited representative of the Russian Department of Agriculture, and will probably do much toward introducing modern apiculture in that vast empire where the most modern and the most ancient tools are used side by side.

Vcela Moravska is the name of a 40-page bee journal published in the Bohemian language, address not known. It is nicely printed, and is doubtless fully up to the times.



PLANTING FOR HONEY.

"Good morning. Is this Mr. Doolittle, the bee-keeper?"

"That is what some people call me."

"Well; I have been reading your conversations in GLEANINGS for some time back, so I came to see you (by letter) this morning. I have an idea, and I want to ask you about it."

"Ideas are good things to have; and if you have one that is of value, no doubt the readers of GLEANINGS will be glad to hear about it."

"But this idea was not for the benefit of somebody else. I wished your advice regarding it, that I myself might be benefited by your advice."

"Perhaps I shall not be able to advise you very much, but I will do the best I can. What is the idea?"

"My idea is that, if I can sow or plant something that will bloom about the time white clover fails, I can greatly increase my crop of honey, and the same be a good investment for me. Now, what I want to know is, what is likely to pay best for honey alone, or for honey and some crop of fruit or seeds."

"This question covers the ground of much discussion which has come about during the past; and I believe that the conclusion come to by nearly all practical bee-keepers is that it does not pay to plant really good land with any seed or plants for a crop of honey alone."

"That is discouraging. I had ten acres of excellent land, right close by my bees, and I had hoped that there was something I could plant for honey that would bring me better returns than the good crops I raise on it, of corn, potatoes, cabbage, etc. I have a notion to try the thing any way. I could stand it for a few years, even if I did not get big returns from it. If I do this, what would you advise putting on it?"

"If I were to think of planting for honey alone I can think of nothing better than melilot, or sweet clover; for in this locality this plant commences to bloom at about the time white clover begins to fail, and continues to bloom from then till frost comes in the fall, to a greater or less extent."

"But will not sweet clover furnish food for stock as well as honey for the bees?"

"Some say that stock can be taught to eat it, in which case it becomes a valuable forage-plant, and pays better than almost any other forage-plant, aside from its honey-producing qualities; but, so far as I know or can learn, no animal will touch it in this locality."

"What next would you advise me to try?"

"Alsike clover is one of the best plants for both honey and hay; and for quick returns there is probably nothing better, taking every thing into consideration, than is this clover."

"But that blooms at the same time the white clover does, does it not?"

"Yes, unless precaution is taken it will bloom at the same time the white clover does; hence it is of less value than it would be, so far as honey is concerned, could it begin to bloom at about the time white clover failed."

"You spoke about precaution being taken. What did you mean by that?"

"Alsike clover can be made to bloom very nearly when wanted, within reasonable limits, by turning stock on it, and letting them keep it eaten down short till about two weeks before you wish the bloom to commence, when it will give a good crop of blossoms and a fair crop of hay, though the hay crop will not be quite as large as it would if it could have had its own way."

"Is there nothing else that will help this matter out?"

"As you are somewhat young in years, if you have the patience to wait I would advise you to plant basswood. In the list of honey-producing trees and plants it stands first in bountiful yields; and in fine flavor, beautiful color, and quality of the honey produced, it is second to none, while the day is coming when any thing in the way of basswood lumber will sell at a price that will make it profitable to the one who can furnish any lumber of that name."

"Are you confident of this?"

"Yes, I am. Fifty years from now this grand tree will have practically ceased to exist in our forests, and be little known save as it is planted by enterprising persons, or exists in some of the gorges or out-of-the-way places so inaccessible that it will be considered too much trouble to procure it. Where there were fifty trees in this section in my boyhood days of forty-five years ago, there is hardly one now; and the few that are left are of the 'second growth;' or so crooked and scrubby as to be of little value for lumber. I have about 200 trees on my land, all the way from six to fifteen inches through at the butt, straight as an arrow, and from 50 to 75 feet tall, and no one would hire me to have them cut off, just for their prospect in lumber alone, while many of them resound with the merry hum of the bees at blooming time nearly every year."

"Did you plant these trees?"

"No. They were little poles which had come up from trees which had been cut down a few years before I came in possession of the land. I have been advised to clear the land several times during past years, but I said no; and now that they have got so nice a start, the same persons who advised clearing off, admit that this is the nicest wood lots, and of more value than almost any of the land round about."

"Have you any further advice?"

"To prolong the season so as to have honey in August, I would advise sowing buckwheat. The honey it produces is not of so great value as the white honeys, yet it comes at a time when it helps the bees in building up for winter, and brings a price in market that will pay for the labor expended; while the grain will amply pay for the whole raising of the crop, so that all that is secured by the bees and their keeper is clear gain."

"I must be going now, for I have hindered you long enough."

"Before you go I wish to call your attention to something we have not even hinted at, which I consider as of the greatest value in all of this planting-for-honey matter."

"What is that?"

"Have you any waste land lying about you that is growing up to weeds, burdocks, etc.?"

"Yes, plenty of such; especially about the fences."

"Well, did you never think that these waste places might be utilized? By planting something there which will produce much honey, this can be made to take the place of the weeds, briers, and daisies, so that the planting for honey may be beneficial, not only to the bee-keeper, but to all others, as something of value to some one takes the place of that which is of value to no one, and that which is often worse than no value; for the scattering of seeds from these waste places is often a nuisance to those who live where the winter's drifting snows may carry the seeds of noxious weeds far and wide. Right here is where I would advise you to commence operations first."

Editorial
By E. R. Root

HEADS OF GRAIN DEPARTMENT FOR VETERANS AS WELL AS BEGINNERS.

A GOOD many of our subscribers have gotten the impression somehow that the department of questions and answers, or what we call Heads of Grain, is designed exclusively for beginners. If any one has that impression, I wish to disabuse his mind at once. An old veteran will often contribute a valuable fact from experience, that needs only one or two hundred words to tell it. Such items go in the department of Heads of Grain.* I should say that at least half of that department is intended for veterans. Technical matter does not necessarily have to be in the form of long-winded articles. Some of the most valuable and brightest ideas come from the veterans, written with a pencil, fingers bedaubed with propolis. These people have not the time to go into a long dissertation when only a few words are necessary to set forth the facts or ideas. If there is any know-it-all who is making a practice of skipping these shorter items, he is missing much.

THOSE BEES IN THE MACHINE-SHOP BASEMENT.

WE are just taking our bees out of the cellar this afternoon, March 26. They have been confined in the apartment all winter, and during the warmest part of the weather outside they are keeping comparatively quiet. But some one of our employees (no one knows who) went into the bee-room and turned on the electric light. The first I knew, it was on. It probably had been burning several days, glaring away at those bees. When I first went in I felt sure that at least a third of the colonies were dead, and the rest of the bees very much depleted. I shut off the light, and closed the door. I said to myself, "Those bees are done up, sure." Some employee doubtless blundered into the wrong room. Striking against an electric-light globe he turned it on. This, of course, drew the bees. The result was, he became frightened, left the room, and shut the door. Well, to-day I expected to find many of them gone up; but imagine my surprise to find them in remarkably fine condition—not a colony dead. But let me tell you there are more dead bees on the floor—yes, four or five times over—than there were about a week ago before the light had been turned on. At that time there were hardly enough to fill a two-quart measure out of 40 colonies. Many of these colonies were nuclei, too weak to winter outdoors, and yet they all seem to be healthy. There are no dysentery markings on the hives worth mentioning, and the droppings are the voidings of healthy bees. A dry cellar and plenty of fresh air seemingly hold dysentery in check.

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* The article from Mr. McEvoy and the one from Mr. Greiner, both in the department of "Heads of Grain" in this issue, are cases in point.

M'EVOY'S PLAN OF STOPPING THE OUTCOMING OF TWO OF MORE SWARMS AT ONE TIME, AND MIXING TOGETHER.

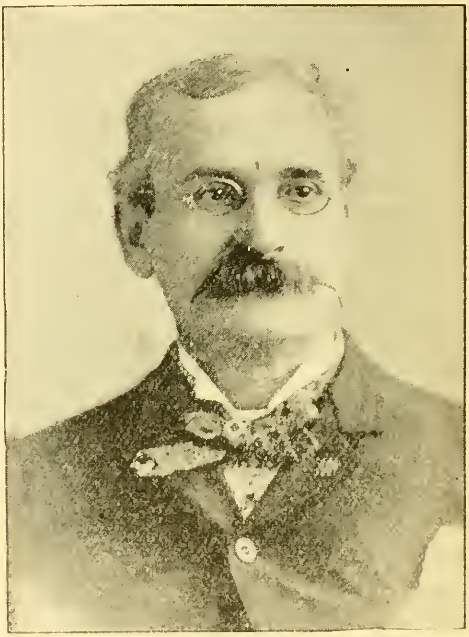
IN this issue, Mr. Wm. McEvoy, of foul-brood-inspector fame, tells of a very unique plan for preventing several swarms from mixing up, or, rather, preventing them from coming out entirely. His plan of covering the entrances tight with sheets or blankets of all such colonies as are casting or preparing to cast a swarm is one that I should have said would not accomplish the object sought, for the reason that the bees would boil out under the blankets through every available opening. But Mr. McEvoy is not a man to recommend a thing of this kind unless it would work; and, assuming that it does exactly what he says it does, he has offered a little kink to the trade that will be worth many dollars to many another person. It would then behoove the bee-keeper to have half a dozen blankets handy. If he uses the whole six he could purloin some of his wife's sheets. Probably these last would require to be held down with bricks, stones, or other objects, so that they would not leave gap-holes for the bees to escape. I should be glad to hear from some of our subscribers as to whether they ever tried a plan like this. I intended to make this a footnote; but it got crowded out of its proper place, so I put it here to direct attention to Mr. McEvoy's article.

"FOUL BROOD SOON TO BE A THING OF THE PAST IN ONTARIO."

MR. MCEVOY says that "foul brood will soon be a thing of the past in Ontario." When we remember that at one time the province had more of this disease in it than any other equal area in North America, it reflects no little credit on the inspector, backed by a good law. He goes on further to state that Ontario sustains "more sound and very choice apiaries, for the number kept, than any other country in the world." I learn with some degree of surprise that an effort has been put on foot, in spite of this excellent showing, to get an inspector for each of the 43 counties or 344 townships. It is estimated this would make an expense of over $10,000. Surely the Canadian bee-keepers will be content to let well enough alone by continuing Mr. McEvoy and Mr. Gemmill as inspectors. The plan of county inspection was tried in Michigan and New York, and abandoned; and the only State where it gives any degree of satisfaction is California, some of the counties of which are larger than some whole States. I believe I am within the truth when I say that the Ontario bee-keepers know enough to let well enough alone.

DEATH OF THOMAS G. NEWMAN.

WITHIN the last eight months time has taken away four of the old veterans—veterans of the veterans in the bee-keeping industry. First, July 16, came the death of the venerable Charles Dadant, one whose name was revered by bee keepers both in Europe and America. Next followed our genial Dr. A. B. Mason, on Nov. 12, one of the most enthusiastic workers and officers of the National Bee-keeepers' Association we ever had. Then on Jan. 13 our correspondent, J. H. Martin, went to the great beyond, the much-loved Rambler, who rambled all over the United States, and finally passed his last days in Cuba. Now we are compelled to record the death of another, the old Roman, "the old war horse," Thomas G. Newman, who died in San Francisco, March 10, at the age of 69, of gastritis.



THOMAS G. NEWMAN.

Mr. Newman was born near Bridgewater, England, in September, 1833. At the early age of ten he was left fatherless, the mother being left penniless by reason of the father indorsing for a large sum. Young Newman was put out at work, learning the trade of printer and book-binder. Next we hear of him in Rochester, N. Y., 1854, where he secured a permanent position in the job-room of the *American*. Several months later he was promoted to assistant foremanship of the Rochester *Democrat*. Again we find him as publisher and editor of a paper called the *Bible Expositor and Millennial Harbinger*. Once again he moves to Cedar Rapids, Iowa, where he published his first daily paper. This he subsequently sold, and moved to Chicago, in 1872. Here he started an illustrated journal; but the panic of 1873 ruined him, bringing on a loss of $20,000.

About this time he was introduced to Rev. W. F. Clark, with the result that he came into possession of the *American Bee Journal*, paying for it $2000. As Dr. Miller has well said, "For a man not afflicted with the bee-fever, in cold blood to pay more than $2000 for the simple good will of a paper, with no printing-office, or supplies of any kind, shows an unbounded confidence in the future of bee-journalism. Few men, under the same circumstances, would have achieved his success." But with indomitable will and hard labor he brought the subscription-list up from 800 to over 5000, and the paper was a financial success. The affairs of the paper were considerably involved and mixed up when Mr. Newman took hold; but A. I. Root well remembers the prompt and energetic business way in which the new owner settled up all outstanding accounts. He employed as editors Rev. W. F. Clark, Mrs. E. S. Tupper, and Dr. C. C. Miller. His paper prospered to such an extent that in 1879 he went to Europe, at his own expense, to attend the various apicultural conventions in England, France, Austria, and Germany.

Mr. G. W. York, the present editor of the *American Bee Journal*, knew Mr. Newman better, perhaps, than any one else, and in his issue for March 19 he pays this glowing tribute to the memory of our departed friend:

> Probably the majority of our readers will best remember Thomas G. Newman as editor of the *American Bee Journal*. He was our honored predecessor, relinquishing all connection with this journal June 1, 1892. With the exception of about one year of the eight preceding that date, Mr. Newman was our employer, and he was a good one too. As we look back now upon those years, when we were getting hold of the ins and outs of both the bee-supply and publishing business, we wonder that he could have been so uniformly patient and courteous, when we must have been exceedingly trying many times. But he was ever the same, though often suffering with ailments, and burdened with business perplexities and cares.
>
> Mr. Newman published the *American Bee Journal* for about twenty years, taking it at a time when the bee business was practically "in the beginning." We believe the paper then had less than 800 subscribers. When he left it, it had 5000. He was a tireless toiler, and took great pride and interest in his work. He was fearless for the right, and did all he knew to do in order to make the *American Bee Journal* of the most value to its subscribers. It was no easy task for us to follow in his footsteps, as we were then wholly unknown to the bee-keeping world. But under his direction and training for years, we were daring enough to make the attempt, even though it was a risky thing for us to do.
>
> Mr. Newman's host of bee-keeping friends will look upon his picture and read these few memorial lines with sadness, They knew him well. He helped them fight their battles and win their victories. He may have made a few enemies—but who that stands for any thing worth standing for has not? But Mr. Nemman never held a grudge against a mortal man, He was ever kind and forgiving, and ever strove to live by the Golden Rule. In business he was an honest man; true to all; and leaves a rich moral heritage to all who knew him.
>
> Our readers, we know, will unite with us in extending to Mrs. Newman and family sincerest sympathy in this their time of bereavement.

While Mr. Newman did splendid work on the *American Bee Journal*, he performed extraordinary and valuable services for the bee-keeping industry while serving as General Manager of the National Bee-keepers' Union, of which he was the founder. The valuable precedents in law which were established under his generalship have been of incalculable benefit to the bee-keepers of the United States; and although the labors of the office were excessive at times, he worked without compensation, and it was only during the last two years or so of his incumbency in office that he accepted any salary.

During the last few years of Mr. Newman's life he struggled with almost total blindness at times, and all the time with poor health. He was by nature and habit an indefatigable worker, and when his affliction of eyesight came on it would seem that most men would give up. Not he. With the help of a reader and a stenographer he struggled on, "burning the candle at both ends" until the tired body and mind that had been crying out enough ceased to pull in the harness any longer.

THE LITTLE SWEET SINGER OF THE CHICAGO CONVENTION FULLY RECOVERED.

OUR readers will remember Miss Ethel Acklin, whose picture we gave in GLEANINGS some two years ago. She was the one who played and sang so delightfully at the Chicago convention, and again at the Buffalo meeting of the National Bee-keepers' Association. Last fall she underwent a severe operation, and her life was despaired of. At the recommendation of her physicians her parents finally took her to California, where, it was thought, a temporary change would tide her over the worst, and it did. We are glad to inform our readers that the danger is now past. Mr. Acklin has been at home in St. Paul for some time. Mrs. Acklin and Ethel will now join him very soon.

The impression seems to have gone out that the Acklins had gone to California to remain permanently. This is a mistake. Mr. Acklin has a flourishing business in St. Paul, where he is prepared to meet his friends and patrons as before.

THE DEATH OF ONE OF OUR CALIFORNIA CORRESPONDENTS.

MR. E. H. SCHAEFFLE, one of our old correspondents in California, died at his home in Murphys, Calaveras Co., March 7. Just prior to getting notice of his death I received a letter from him, stating that, although he was very weak, he was able to keep up his correspondence. He told how a friend admitted to him — a man who is supposed to know—that honey was adulterated in San Francisco in spite of the pure-food law. He explained that the law was good enough, but that those whose business it was to enforce it were somehow under the control of the mixers, and the nefarious business went on without let or hindrance.

Mr. Schaeffle had been working several years to get a pure-food law passed; and if he had lived long enough he would have made it hot for somebody in San Francisco, as there would have been some exposures.

He was a man who worked unflinchingly in the interest of bee-keepers in his section of the country. All through the last session of the State legislature, his son writes, he had been working strenuously for legislation that would aid in the suppression of honey adulteration, and for protection from foul brood, although he was so weak that all his work was done through dictation. He believed in pure honey as well as every thing else that was square. That his labors were not in vain is evidenced by the fact that the foul-brood law in California, which was defective in some particulars, was amended, and the bill was signed by the governor in January. California bee-keepers probably have now as good a law as they could ask for; and our friend Mr. Schaeffle, who has just passed away, deserves no small thanks.

A POSSIBLE SOLUTION OF THE PEAR-BLIGHT PROBLEM BY WHICH THE BEES AND THE PEAR-TREES CAN BE ALLOWED TO EXIST IN THE SAME VICINITY.

It will be remembered by our readers that Dr. M. B. Waite, of the Department of Agriculture, Washington, a year or so ago discovered that bees, among other insects, carried the virus of pear-blight from one blossom or tree to another. This statement came from a strong friend of the bee, who has given it as his candied opinion that perfect fruitage in orchards could not take place without the little friends of the bee-keeper. But the stubborn fact was that *one* of the primal causes at least of the spread of pear-blight that has wrought such havoc in the orchards of California was the bee.

It will be remembered that the bee and fruit men were preparing for a conflict; that the latter averred that they would set out poison if the bee-men did not remove their bees from the vicinity of the pear-trees; and the National Bee-keepers' Union was appealed to, and as an officer of that Association the writer appeared on the field to see what sort of compromise could be effected. The result of this visit was that a truce was declared, and the bee-keepers, for experimental purposes, decided to remove their bees from the infected regions—at least during the time the trees were in bloom; but in spite of the fact that the majority of bee-keepers kept this agreement in good faith, there would be an occasional bee-keeper, even among the fruit-growers, who would still leave his bees in the old location. It was evident that, unless every one complied with the proposition, no benefit would accrue.

Well, matters have been going on from bad to worse. There have been talks of "courts," "poison," and a great amount of bad feeling has been engendered.

Now comes this Dr. Waite, according to the newspaper reports, and says that the pear-blight can be removed without interfering with the industry of bee-keeping. According to a newspaper report (a source which we do not always credit, but which seems in this case to bear the appearance of genuineness), Dr. Waite has discovered a plan by which "colonies of the bacilli" already existing in pear-blighted trees can be located and removed from the tree before it comes into bloom. Dr. Waite is quoted as saying, referring to the pear-growers, "Let them put the diseased part of the tree out of the way before insects begin to fly, and before the blossoms come out for them to alight on." Very simple. And now Dr. Waite is to be sent by his department to Colorado, to show the orchardists how to discover the "colonies of bacilli," and get them out of the way before bees and other insects have an opportunity to carry the infection. According to the same report, the "colonies of blight bacilli live in green bark where the blighted discolored portion blends off gradually into the normal bark." The doctor simply recommends a little common sense and some tree surgery.

One of the largest pear-growers in California told me that the pear-men themselves were largely responsible for the spreading of the disease. Granting that the bees were the chief agent in spreading the infection, he said that many of the growers allowed the diseased trees to exist on their premises without pruning. When they come into bloom the insects carried the infection from flower to flower and from tree to tree.

It is evident that *all* the fruit-growers will have to take unusual precaution to examine every twig in their orchards, and cut out the diseased portions. The *failure of one pear-grower* will put in jeopardy the interests of all the growers in his vicinity, to say nothing of the fearful damage among his own trees; and I would suggest that the kee-keepers themselves co-operate with the growers, and, if necessary, donate some of their own time in helping to prune the trees. A helpful spirit of co-operation will do more to solve this intricate problem, and place both industries on a paying basis, than any law, court, or poison could ever effect.

The large pear-growers in the vicinity of Hanford, Cal., so far as I could see, were progressive men. It was the small growers who talked venom and "poison," "courts" and "fight."

I omitted to mention that Dr. Waite says the pruning-knife or shears must be dipped in some disinfecting medium every time it cuts off a limb of a tree. It would be monstrous foolishness to scatter the blight from tree to tree in the very act of preventing such spread.

Of course, Dr. Waite's new plan may not prove to be entirely effective, from want of perfect co-operation and thoroughness. If they fail to take the means at hand, then the bee-men can hardly be held accountable before the courts.

GENERAL
CORRESPONDENCE.

PRIDGEN ON QUEEN-REARING.

Cell-building.

BY W. A. PRIDGEN.

To prepare the bees for cell-building we will first consider the manipulation with the hive as shown in Fig. 2, last issue, page 231, with only three chambers, as it is less complicated; and, to simplify matters, we will imagine that each chamber is lettered, beginning at *a* at the left, and going to the right with *b* and *c* in order, each being stocked with a distinct populous colony of bees, *a* and *c* having entrances on one side and *b* on the other.

Remove the queen from *a*, and, two or three days later, these bees will be ready to complete cups that have been accepted by broodless and queenless bees confined, as has already been described, without depriving them of their brood, though any queen-cells found started on their combs at the time the accepted cups are given to them should be destroyed. When the queen is removed, a comb of brood and adhering bees may be taken with her to form a nucleus, and thus leave a space for the cell-frame, and separate those left to fill the space until the cups be given, or the queen alone may be taken, and a space made by removing a comb containing no brood when the cups are given, provided the combs left in the hive are so arranged as to place the cups in the center of the brood-nest.

The bees can remain in this condition until the cells are sealed, and then remove the division-board in the partition between *a* and *b*, and insert the bridge; or communication can be given between them when the batch of cups is inserted and have the cells completed as is the case over an excluder with a laying queen below. The point to be emphasized right here is the fact that this hive is conveniently arranged for having cells built by queenless bees, or those in touch with a laying queen, according to the wishes of the operator.

Communication should be given every time as soon as the cells are sealed, if it is not done before, so that the bees will act like those recently made queenless, in case it is necessary to cut off communication with the queen, to have the next batch of cups accepted and the cells sealed, though this is seldom necessary in either case, if the hive is kept crowded with bees; though when the first batch of ripe cells is removed, all the brood in chamber *a* will be sealed; and if the bees fail to accept the cups promptly, without their first being given to confined queenless bees, then simply cut off communication between *a* and *b* by removing the bridge and dropping a solid board into the slot, late in the evening, and the next day they will be found in a condition to accept cups promptly. If one is not in a hurry to have cells built, communication can be given when the queen is removed; and when all the brood is sealed, remove the queen-cells built on the combs, and then drop a solid board, or one provided with bee-escapes, into the slot, being sure to have the escapes so arranged as to conduct the bees from the queen's chamber to *a*, if the latter be used, and in this way one may have the first batch of cups accepted by these bees.

The same manipulations apply to chamber *c*, throughout, though they should not both be worked at the same time, but so managed as to remove a batch of ripe cells, first from one and then the other every five or six days.

As soon as the point is reached at which communication is given from the queen's chamber to one or both of the others all the time, a bee-escape should be adjusted to the entrance to the queen's chamber, so that the bees can pass in through it, but can not pass out until all passing is through the partitions and chambers *a*, *b*, and *c*, and then stop the entrance to the queen's chamber. Not only because more satisfactory work at cell-building is done in a chamber having the main entrance; but in case a swarm issues we want to throw the working force all into the cell-building chambers, and so depopulate the queen's chamber that the swarm-cells will be destroyed, and the queen will begin to lay at once, without its having to be opened. This is easily accomplished by simply adjusting the solid boards in the partitions, when the swarm issues, or as soon afterward as convenient, and again open the same entrance below the zinc excluder to the queen's chamber, which is far ahead of caging queens and cutting out cells to prevent swarming, as one never lays in a business-like manner so long as she is in touch with bees that have the swarming fever.

The swarm naturally returns to the entrances of the cell-building chambers, and are in condition to accept cups and continue the work to a state of perfection.

Under these conditions all sealed cells should be removed, and given to queenless bees or those over excluders to be cared for until ripe, and at the same time furnish the cell-builders, from which they are taken, a supply of freshly grafted cups. In five or six days communication can again be given from the cell-builders to the queen's chamber, and the bee-escape adjusted as before, only to repeat the operations as often as a swarm issues, which causes the apiarist but little annoyance unless the swarm unites with another that chances to be out, or is joined by a queen that is taking a flight. In this event, cut off communication between the different chambers as before, being sure to open the entrance to the middle one (the queen's chamber) on the opposite side, as in the first case. Adjust entrance-guards to all the entrances not stopped, being certain that none of those above the queen-excluders are open, and return the swarm joined by the strange queen, or the united swarm, as the case may be, to the cell-building chambers.

The queen with the swarm can, as a rule, be found trying to pass through the entrance-guards; but if from any cause she should pass any one of them she would then be excluded from the brood-chamber by the zinc in the bottom of the hive, the guards to be removed when no longer needed. These permanent excluders not only serve the purpose of preventing the escape of objectionable drones, which may be trapped from the entrances above them, but also prevent the entrance (and consequently the destruction) of the cells by virgin queens, or those with swarms that may be attracted by the cell-builders, which is sometimes the case when cells are being built by queenless bees, or even those in communication with a laying queen, if there be an entrance to the portion of the hive from which the queen is excluded.

Every time a batch of cups is given and accepted, combs of brood, mostly sealed, taken from other colonies in the apiary, should be substituted for those in the cell-builders' chambers from which the brood has emerged. These should be placed next to the cells or cups every time, and thoroughly examined as often as a batch is removed, for cells that may be constructed on them, all of which should be destroyed, as the hatching of a queen means the destruction of the cells in that chamber, and often an untold amount of trouble to find her. So long as cells are constructed on the combs of brood given, we have positive proof that the bees are in condition to do excellent work at cell-building, a thing they almost invariably do throughout the season in a hive properly constructed or arranged, if it be kept crowded with bees of all ages, and sufficient feeding be resorted to when the flowers do not yield sufficiently to meet the daily demand. But a better plan of keeping up the desired strength in the cell-building colonies is to have the brood all sealed above excluders in other hives, and examine them for cells when transferred with adhering bees to the cell-building colonies. By so doing the brood to be fed is never in proportion to the force of nurse-bees, which tends to bring about the supersedure impulse and the conditions wanted for the best results in cell-building.

These combs of brood are usually secured from nuclei, and placed over the excluders to be sealed, and those taken from the cell-builders, which are usually filled with honey or syrup, are given to the nuclei in exchange, and thereby bring about the conditions wanted in both. While, as a rule, it is better to allow the cells to remain where they are built, until they are ripe, and are ready to be distributed among the nuclei, or to have a nursery adjusted over them, as the case may be; still, when the cell-builders are inclined to build drone comb around and between them, as is often the case during a honey-flow, or when heavy feeding is resorted to, it is much better to remove them as soon as they are sealed, with adhering bees, to nuclei that have been queenless two or three days, or to less populous and prosperous colonies over excluders, as perfect queens seldom emerge from cells unless they possess the peanut appearance.

Continued.

COMB FOUNDATION.

Its Value and Use; the Weed Foundation the Best.

BY R. F. HOLTERMANN.

It has been my privilege, either under the Ontario, Quebec, or Canadian Dominion Government, as a farmer's-institute worker, to meet a good many bee-keepers, and also to visit a good many in their homes. Quite recently I returned from almost a month's trip of the above nature. Comb foundation has also been a study with me for many years, not alone practically in the apiary, but in its manufacture. So far as I know, the first experiments conducted in testing in the five various grades of comb foundation were planned by me. The Michigan Agricultural College, when they began experiments with foundations, courteously sent me samples of each grade to test, saying they sent it because I had already been carrying on some investigations. So strongly am I impressed with the value of comb foundation, that, after careful reflection, to do without it would probably mean for me to go out of bee-keeping. I certainly would have to go out of it as a business had my neighbors access to such a valuable asset for the bee-keeper; and yet I find bee-keepers all through the country who are trying to save (dare I call it this?) by economizing (?) in the use (or *not* use) of comb foundation.

It has long been admitted that foundation gives us straight combs; a starter will do next, and prevents drone comb if a full sheet is used. For this purpose it is worth many times its price. Let us remember that many generations hatch in a comb during the legitimate lifetime of a comb. Then the bees are saved material. The value of this we do not know. The bees are also saved work by the use of foundation.

In times of heavy flows the bees can not build comb as rapidly as the bees can gather. Here and in the doing-away with drone comb, lies, in my estimation, the greatest value of foundation. In a short honey-flow, running for comb honey, I believe it pays to use only a very narrow starter in the brood-frames. It compels the bees to put the honey almost entirely in the sections; and when we go to the expense of running a colony for comb honey, the more they put in marketable shape the better. We can take combs out of extracted-honey hives run under more advantageous conditions for rapid storing, or we can otherwise afterward supply the comb-honey hive. But if the flow is prolonged, as it may be with us—clover, basswood, and then buckwheat —I would prefer the increased brood, which a good queen is likely to give through more rapid space being provided her for laying by the use of full sheets of foundation.

When it comes to the production of comb honey it is amazing to me how any one can be so foolish as to do without full sheets of foundation in the sections. That by using a proper grade of section foundation—that is, by taking a piece of virgin comb, and then comb built upon foundation, and testing it with the tongue, a difference may be found, means nothing. The tongue as a feeler has the trick of making a mountain out of a molehill. That a difference can be detected by careful inspection with the eye and spoon, is also of little consequence. Honey is almost invariably eaten with bread, when the extra wax, perfectly harmless in the alimentary canal, is unnoticed.

By the use of comb foundation we get evener comb. It is attached better to the side and bottom of the section, and room is more rapidly provided for storing. The bees are less likely to swarm, there being more of an inducement to go into the supers.

Now as to the comb foundation. I regret that, in the report of the Ontario Bee-keepers' Association convention, page 37, *American Bee Journal*, through some one's slip a decidedly wrong impression is given of what was said by me about the Weed foundation. I distinctly said that I had not found other section foundation more acceptable to the bees. In fact, so far the contrary is my experience, and I hope no one will use that incorrect statement as evidence of the superiority of other makes.

The Weed foundation has, for brood or sections, the advantage over any other I have so far used, of staying better where it is at the beginning; less sagging, or none at all. It is stronger; less weight per sheet in the brood will answer — a great saving. I fill the sections, the sides just hanging free; also the bottom; no starter needs to be used with this foundation, you can depend on it. The great objection I have to the ordinary foundation put upon the market is that it is not large enough to fill properly the section or frame for which it is made. By the close of this season the amount of brood foundation I expect to have used for the last year and this (this includes surplus combs) I expect will have reached close to 10,000 sheets; so I back up in practice what I advocate. I have 100 comb honey supers holding 36 sections each. Every section, last year and this, will have a full sheet of foundation.

Brantford, Canada.

BULK HONEY IN MEXICO.

Candied Honey Not Salable; Gasoline for Killing Wax-worms in place of Bisulphide of Carbon.

BY W. B. GEHRELS.

After reading Mr. Hyde's article on bulk comb honey, page 143, Feb. 15, I should like to give some of our experience in that line. The way we fasten foundation in shallow frames is by using a wax tube to run a little hot wax in the groove of the frame after the foundation is inserted; and for frames that have a comb-guide we simply use a roller foundation-fastener to fasten the starters on. After the first starters are put in we seldom use foundation again; but when cutting out the honey we leave half an inch of comb for a starter, the bees seem to work faster on this than on foundation, and get the combs just as straight. Where the frames are filled several times in a season this will be quite an item in saving foundation, besides saving time. At the end of the season we cut out the comb honey, leaving only half as much for a starter, stack them up, and let the bees clean out the honey.

If wax-worms should get in the strip of comb left, use bisulphide of carbon to kill the worms. A neighbor told me that gasoline would kill wax-worms by using it the same way as bisulphide of carbon—namely, by closing a stack of supers tight and letting a quantity evaporate by setting it in the supers in an open vessel. Both bisulphide of carbon and gasoline should be handled carefully on account of their inflammability.

My experience is not the same as Mr. Hyde's in selling candied honey. I have sold large quantities of honey in Texas, mostly in San Antonio, and the greater part of my customers always objected to candied honey, either comb or extracted. Nothing has caused me more trouble than people objecting to honey after it was candied. It certainly spoils the looks of honey, especially when it is in glass. Most people never stop to think that this gray-looking stuff is honey in the jars. For the winter trade, give me section honey, and good extracted that I can liquefy. I like to have some of each kind—sections, chunk honey, and extracted; for in this way I can suit almost anybody who likes honey, at almost any time.

In selling honey to groceries, especially wholesale stores that buy to resell in bulk and ship, I often found the need of a small cheap jar or tumbler that would seal tight, and could be retailed for 10 cents apiece after being filled. The ordinary $\frac{1}{3}$-pint jelly-tumbler answers the purpose for the home city trade; but there is no way of sealing it tight enough to ship with safety. The empty jars ought not to cost over 3 cents apiece, and ought to be in cases holding 2 dozen in a case. If any one has a jar of this size, $\frac{1}{3}$ pint, and description, he could find a ready market for it.

We expect a fine honey-flow from orange and lemon very soon. The bees are already working on them to some extent. The buds are not open, but they secrete some honey from the stems of the buds and tender young leaves.

Montemorelos, Mexico, Feb. 26.

THE NEW NOMENCLATURE.

A Plea for the Term "Forced Swarms," to Cover "Jounced," "Shaken," and "Brushed" Swarms.

BY R. C. AIKIN.

Friend Root:—I have previously written on the subject of proper names for swarms other than natural ones; but your remarks on page 47 stir me again. The term *driven* has already a special meaning in apicultural affairs that does not apply to any form of shaking or brushing; but the term *swarm* does apply to a congregation of bees whether accumulated by instinct or forced and unnatural methods. In that item you say "shaken, shook, brushed, jounced, or forced." Don't you see that your last name covers all the others? If you had left out the term "forced" and put the "or" before "jounced," you would have said all that you did say. The various terms you used are but qualifying ones showing by what method the forced swarm was made, so that to use any one of them is not proper; but it would be proper to say, "made forced swarms by brushing, driving, etc." It seems to me so plain a matter that there should be no quibbling about it whatever, at least along the lines so far considered.

I should not consider the name "artificial" at all the one, for it does not fully cover, because of its use. Artificial is not real, such as a wooden horse, cow, or other thing—wax flowers, etc., but we do make a swarm of bees a real swarm. and not a wooden or wax one. It would be more proper to say artificial swarming than to say an artificial swarm, for we are describing the art of making swarms as compared with the natural or instinct plan; but, the division made, we have a swarm of bees just as we have swarms of flies or any other insect or any thing else that congregates in great numbers. Even should you scatter the bees until they cease to be a swarm they again congregate and become a swarm or aggregation.

Many times I have thought to speak of other uses of words that are superfluous and amusing, but have refrained, partly because I am not a grammarian, yet the blunders are so very plain that any one should observe them. Look at these: The house burned up; the dog chewed up; he gathered up his apple crop (or any other crop); I swept up (together) the bees, swept out the house, cleaned off the porch, cleaned out the stable, washed off my face, or hands, brushed down the walls, etc. I once heard a schoolgirl criticise her mother for some trivial mistake in the use of language; and to call her attention to the fact that she herself was not perfect I said, "Minnie, do you ever sweep the house out?" She blushed, and looked at the floor, then stammered, "Yes, sometimes."

I replied, "You mean you sweep the dirt out," which at once turned the laugh. In almost every case the words *out*, *off*, *up*, and *down* are superfluous. The house in reality burned down; but even that is not proper; it simply burned, or was consumed. The poor man having his face and hands washed off is surely in a bad fix.

Now, friend Root, I would not have written this but for the fact that that swarm question is up for settlement; and the term that will be adopted depends mainly upon what you and other editors and writers use, especially editors; and it behooves you to start right and insist on the proper name until it is fixed. I am glad to see that many are using the name I advocate, and many say "shook or forced," you see, naturally gravitating to *forced* because it seems to cover or convey the thought better.

Loveland, Col. R. C. Aikin.

[I think it is pretty well agreed among us that "forced swarms" is the term to use, covering a variety of manipulations, and so far I have endeavored to substitute this term when it is used in a *general way;* but it is perfectly proper to use "jounced," "brushed," or "shaken" to indicate the specific mode of handling such swarms, and I do not see but we shall have to allow the use of them when the precise means of handling is to be pointed out. "Driven swarm" may be proper enough for a general term, and personally I should not object to it; but the word "forced" has come to be a part of our nomenclature.

If you attempt to criticise the common uses of the language which are recognized as proper wherever the English language is spoken, you will get into deep water. The use of the adverbs in connection with the verbs cited may, perhaps, be superfluous, but they have come to be a part of the language, and accepted by all the best scholars. We could not change them, even if we would.

I would defend Minnie by saying she was perfectly proper in saying she could "sweep the house out," on the ground that usage recognizes the legitimacy of the term. If you attempt to throw out the superfluous adverbs all through the language you will have a bigger job on your hands than to try to reform our spelling. But it behooves us, nevertheless those of us who are coining words, to make them as accurate as possible to start with, so that foreigners learning our language will not be confused as was the Frenchman when his head was sticking out of the car window, and he was told to "look out." He protested that he was looking out, notwithstanding a telegraph-pole was liable to take off his head. But our language is not the only one that is incongruous in some of its phraseology. —Ed.]

Heads of Grain
from different fields

A CONVENIENT DEVICE FOR FILLING HONEY-BOTTLES.

Whenever I had occasion to fill small receptacles, such as tumblers, jars, fruit-cans, etc., from a square 60-lb. tin can, I always found it a most unpleasant and difficult task. The general make-up of the can, its straight, smooth sides with no handles or projections of any kind, together with its comparatively heavy weight when full, required a somewhat trick-like manipulation to succeed without having more or less honey running down on the outside of the large can or the one to be filled. A simple little device which I have constructed and used lately changes this heretofore annoying work to a pleasant pastime.

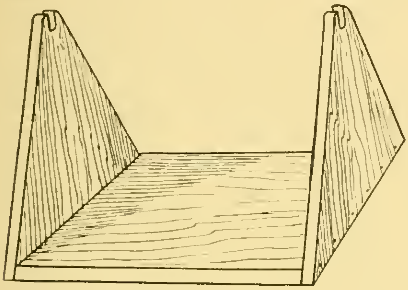


FIG. 1.

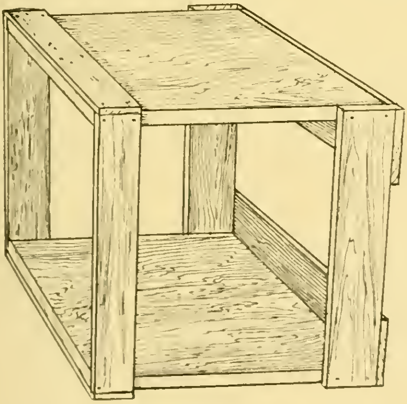


FIG. 2.

The accompanying illustrations give each part separate and all in combination. Fig. 1, frame or standard; Fig. 2, basket; Fig. 3, the whole in operation.

The basket revolves or swings on a pair of ¼-in. rivets, and with the can when full nearly balances, so that a very light pressure with the left hand is sufficient to tip it forward until the desired stream of honey is running. When the small can is full, a slight backward move of the can will stop the flow; and with a turning motion of the right hand, the edge of the small can scraping the lower edge of the outlet, all the dripping honey is cleaned up and the job done in a neat and workmanlike manner.

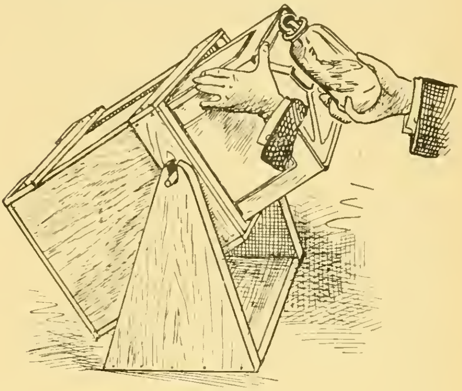


FIG. 3.

It will be noticed in Fig. 3 that the outlet is on the upper side of the can. To run a clear stream and prevent the honey from running down the can, a portion of the contents, perhaps two gallons, should be drawn in this way. After that the basket may be tipped in the opposite direction, and the rest drawn. When nearly empty, the can should be taken from the basket; and by holding it cornerwise almost every drop can be made to run out.

La Salle, N. Y. G. C. GREINER.

[This device is very ingenious as well as simple; and for filling from the square can, nothing could be handier.—ED.]

SPIDERS; SOMETHING ABOUT SCORPIONS, FROM PROF. COOK.

Mr. Root:—The "scorpio spiders" sent you by a customer in South Africa, and which he said he saw hanging by the nippers of the forearm to the bee's legs, were very well named by your correspondent. They belong to the great spider order, *Arachnida*, and to the scorpion group which have been known by the name *Pedi palpi*, because the palpi, which are really mouth organs, are long, and look as though they might be feet, though they are the fifth pair of long organs, and none of the spider group have more than eight legs. Your correspondent probably mistook these for legs, as he spoke of them as holding on by their forearms. This group has also been known as *Arthro-gastra* because their abdomen is ringed or segmented unlike all the others of the spider group. As all know, the mites and true spiders have no segments to the abdomen. These segmented forms include the true scorpion, very common here in California; the whip scorpion, with long caudle appendages; the *Datames*, which I illustrate in my bee-book, and which sometimes are known to kill bees; the harvestmen, or daddy-longlegs, as they are sometimes called; and, lastly, those sent by your correspondent, which are known as book scorpions, as some of them are often found around book-cases. Those we have here are rather smaller than the one sent from South Africa, and I suppose they, like all of the spider group, live on other insects. The genus of ours and those found in Michigan and Ohio are *Chelifer*. From their size we should hardly expect they would do much harm in the hive, although they might annoy the bees, which it seems they did do, as the bees were trying to get rid of them. Ours are sometimes called *pseudo* scorpions, which word means, of course, *false* scorpion. Their most characteristic feature is their immense "palpi," which end in immense pincers, or, as they are often called, *chelicera*. They thus remind us of the crayfish or lobster, though in the latter case these great pincer-tipped feet are really legs. I am curious to know whether these are really in the bee-hives, and whether they do work any considerable mischief to the bees. If they do, this is the second species of this scorpion group that works harm to the apiarist. The datames, or galiodies, are not uncommon in California, and do really destroy bees, although they are not numerous enough to be of any serious consequence. A. J. COOK.

Claremont, Cal.

AN UNPUBLISHED CHAPTER IN THE LIFE OF THE RAMBLER.

Ever since I read of the death of our friend Martin I have been sad; and no one in this country who was ever acquainted with him or his noble writing and work, can feel otherwise. So I thought it would give me relief to write you and give you some of his writings over six years ago, when I had to pass through the same trials that our friend did, when I had to give up the best friend on earth, whose death was published in GLEANINGS. Yes, I am sure that cloud of sorrow never left him in this life; and while on the mountains or on the lonely plains I believe the tear of sorrow for his loved one often stole down his cheek. He wrote me, Dec. 13, 1896, saying:

> You may be sure that you have my heartfelt sympathies, for I have been through the deep waters as well as yourself; and when I saw the name Celesta, the teardrops moistened my eyes, for that was a portion of my wife's name—Libbie Celesta Martin. For 13 years we passed a very happy married life. One child came to us that died at birth. At the close of the 13 years my wife was taken away after only ten days' sickness, and left me stunned with grief. I lived with my aged parents, and cared for them, but in two years to the month after my wife died my parents both died. Soon after, I sold out, and ever since I have been a homeless wanderer (rambler). I know you will sadly miss your beloved wife, and will miss her more now than you did at first. I know how sad, too, your home-coming will be after you have been for a day away—no dear loving face and smiles, and a kiss to greet you. Yet we should feel that death is only a change to a better and a higher life. With that assurance, could we call our loved ones back again to the trials of this cold world? No, we could not. Hoping you the consolation that only the dear Savior can give, I remain truly yours, J. H. MARTIN.

You don't know how much comfort this kind letter gave me in hours of trouble; and while he had his sad hours he trusted in one who would carry him through life with that unshaken faith in Jesus to the dear one he longed so much to see. While he has gone from earth's work he has sown seed that will germinate and grow from sea to sea; and while we mourn his loss, may we be bettered by his noble life, for the Bible tells us by the sadness of the countenance the heart is made better; but that which I have seen for 13 long years will appear no more. ABBOTT CLEMANS.

Benson, W. Va., Feb. 8.

DON'T LET YOUR SWARMS GET INTO A MIX-UP; A VALUABLE KINK.

Last season was the worst one ever known in Ontario for many swarms rushing out of their hives at the same time, and all clustering in one great cluster; and where this takes place it uses up much of the bee-keeper's time in putting things to rights, and delays all his other work, which needs very prompt attention, and at the end of the season he will be many dollars short in his honey crop. Last summer I saw the swarms coming out of eleven of my colonies at the same time. I called my help, and we very promptly covered ten of these with quilts and sheets, and let the one that had most bees out go on and alight, which it did; and before they had half clustered, four more colonies started swarming, and these we promptly stopped by covering them with quilts which went down to the ground, and hung out about a foot from the hives; and under these quilts the bees rushed out of the hives pellmell for a few minutes, and then returned back into into their hives. As I keep all of my queens' wings clipped, and finding the swarm up the tree not returning, I knew it must have a young queen with it, and at once hived that swarm. I then took the quilts off the 14 colonies as quick as I could, so as to let in the field bees that were coming home hunting for their hives. I then went to work, and divided the bees and made a swarm from each of these 14 colonies, which I prevented from swarming, and secured a good yield of honey. I hit on this method over 25 years ago, and have practiced it ever since; and it has been worth many dollars to me.

WM. MCEVOY.

Woodburn, Ont., Canada, Mar. 18.

DO SEEDLING PEAR-TREES EVER BLIGHT?

Do seedling pear-trees ever blight? I have seen two that got to be very large (30 feet or more high, and 40 or 50 years old), and they did not blight, to my knowledge. One of my neighbors has three seedlings ten years old that have borne pears four years, and not blighted yet. But you all say we do not want seedlings.

Again, will pears grafted or budded on seedling pears blight? A nurseryman told me that they will not; and if not, why not so bud or graft them, and let the pear-men and bee-men live together in harmony by this plan of propagating pear-trees? I have two seedling pears that I expect to experiment on, and have quite a lot of seeds ready for spring planting.

The great Lincoln pear-tree (seedling) at Lincoln, Ills., never blights; but trees raised from buds and grafts from it do blight. M. W. MURPHEY.

Cuba, Ills.

QUESTIONS AND ANSWERS IN GLEANINGS; FENCES FOR THE BUILDING-OUT OF BROOD-COMBS A SUCCESS; A KINK IN INTRODUCING.

After reading your "General Subject-matter of a Bee Journal," and your suggestion as to suggestions and criticisms from your readers, I went back to the beginning of the issue, and read it all through carefully, and am now convinced that February 15th issue can not be improved upon. I wonder if any of your readers are "smart" enough to better it in any particular. I sincerely hope that the editor will have the compliment paid him that he so richly deserves—that of unanimous approval of the editorial management of GLEANINGS If it is in order to suggest one thing that would enlarge its scope of usefulness I believe that a "new-idea department" would be a good thing. What I mean to say is, that there are a great many good ideas known to individual bee-keepers—little discoveries that each one has made, or that some have made—that would be very valuable to others if generally known, and that a department in GLEANINGS soliciting such ideas would bring out many little helpful things that are not now thought worthy of "handing around."

For instance, I have at times tried separating brood-frames with the slatted section fence in order to compel the bees to build the combs straight, and it works like a charm. I take out the fence when the combs have been well drawn out. I wish I had fence of brood-frame depth in sufficient quantity to have all future brood-comb built by.

I remember that, some months ago, some bee-keeper wrote of a good plan to introduce queens that he had tried, which was to give the queen (as an "escort") a number of bees (too young to harm her) from the hive to which she is to be introduced, thus compelling her to take the scent of her future home before being introduced to it. I think that was an extremely bright idea, saving much time and many valuable queens. I am always as hungry as the proverbial bear for any thing that is better or quicker or easier or cheaper, and I verily believe that there are many valuable little "tricks" known to individuals that might be brought out by some means and do untold good.

Pass around the little helpful things that you know, and that cost you little or nothing, and see how much better you will feel when you know that you have made the burden lighter for your brother.

Statesville, N. C. JNO. M. GIBBS.

[It is perfectly feasible to use fences in the building-out of brood-frames; but the novice will be quite liable, if he uses only starters of foundation, to get drone comb. If there were a sufficient demand we would be glad to have special fences made for the purpose.

A "new-idea department" in GLEANINGS would be a good thing; but you know the old saw, "There is nothing new under the sun." While it is indeed true that some of the old things are new to others, yet if we should put a method or plan that you deem to be new into the new-idea department, some old veteran might say that it was "older than the hills." It would be better to put these new ideas into the general column of Heads of Grain, where they may prove to be new to some one, and then no old crank can complain because some one else has appropriated his ideas, or invented some new old thing.—ED.]

NEW OR OLD COMBS, AND THEIR RELATION TO WINTER LOSSES.

I wonder if many of us ever stopped to think why it is that, in wintering outdoors, some colonies will come through strong, others be much weakened, and some die outright, when there had been no apparent difference in bees, stores, or protection. After the blizzard had left us, Feb. 23, I examined my 55 colonies that were left on their summer stands, and found, as I had feared, that the losses were very heavy.

The fact that struck me most forcibly was that the bees in one row of hives containing twelve strong colonies were all dead but two, while other rows had not lost more than one each. These colonies in the ill-fated row were all bees that were transferred from box hives two years ago. As the combs were a fairly good lot, when I transferred them I followed the usual method, getting from three to five good straight combs, and filling out the remainder of the hive with sheets of foundation. As I run for extracted honey I use ten-frame Langstroth hives, leaving the brood-chamber in the fall without removing any honey or combs, so that my bees usually have plenty of stores.

When I found so many dead colonies in one row I began to try to find some reason for such a queer result. I first took all the hive-bodies with dead bees into the honey-house, and began to examine the combs and bees. There were 14 dead colonies in all. Three of them had been weak, and one had starved, the combs being empty. The others, including eight of the unhappy ten, were strong in (dead) bees, had plenty of honey, and had each a few cells of brood. But the honey was in every case on one side of the hive, and the cluster of bees on the other; or the cluster was in the center with honey on each side.

Then I began to wonder why the bees should ever cluster on the three or four outside combs when the honey was out of their reach. It could not have been the warm side of the hive, for some of the clusters had been on the east and some on the west side of the hive. But I soon saw that they had invariably clustered on the old transferred combs, no matter where they were, if they were all massed together; and I did not find a single dead colony in which the old combs had been scattered through the hive. The bees had simply preferred to cluster on the old combs, and seemed to consider the honey as of secondary importance.

Now, it seems to me that this could not have been simply chance. I am certain that there are few or none of the living colonies having part old combs and part new; while those that died during this cold spell were almost invariably in that condition. I do not mean to say that this explains all winter losses, by any means. But I think it would be well for us to give the colonies combs of the same age, or when transferring, as in this case, to scatter the old combs through the hive. C. F. Bender.

Newman, Ills.

[We winter every year outdoors at least a large part of our bees; and while bees seem to prefer the old combs, I could never see but they wintered as well on one set as the other. Some seven or eight years ago, when we had foul brood so badly among our bees, we had to shake a good many affected colonies on to foundation. There were some 75 such colonies (or, rather, nuclei) that had all new combs to winter on, and it was that year when we wintered *without the loss of one colony*. The new-comb nuclei, for that was what they were, apparently wintered as well as those that were on old combs, and were stronger.—Ed.]

A COLONY IN THE GARRET, THAT HAS NEVER SWARMED.

In 1863 a party of soldiers plundered and destroyed the apiary of Simp. Bain, at Meltonsville, eight miles from this place. They split open the gums and took all the honey. Mr. Bain got the remnants of several colonies out of the wreck into a large box, and put them in the garret "to save seed." That hive of bees is there yet. They have been "robbed" every year since by cutting out the surplus honey, and have never been known to swarm. These 40-year-old combs still produce vigorous bees, and I suppose Dr. Miller can have his bees with "no desire to swarm" if he will put them in like condition.

THE SHAKEN SWARMS BEAT ALL THE REST.

I began "shaking" swarms several years ago to keep my valuable queens from running off, and to Italianize. The shaken swarms beat all the rest, and at first gave the superior stock more credit than was due. I give one frame of brood, and have never had any to swarm out.

To get rid of a fertile worker I give a frame of brood and eggs, and exchange places with a strong colony while the bees are flying. They raise a *good* queen for me every time. I suppose they destroy the fertile worker at once.

WHICH QUEEN IS KILLED?

If I run a swarm into an old colony that has a queen, which queen is *usually* killed? I have twice had clipped queens with a portion of the swarm enter a near hive, and on opening the hive I found the reigning queen balled, and the intruder in peaceable possession. B. Coman.

Guntersville, Ala., Feb. 26.

[It is a well-known fact that a large colony of bees in a garret will rarely if ever swarm. This matter is mentioned in our A B C of Bee Culture. I have often wondered, though, why bee-keepers have not taken advantage of having large colonies in extraordinarily large hives. Here, for example, is a professional or business man who is away from home all day. Suppose he had some extra large hives on the garret principle, full of bees, storing honey year after year, and never requiring so much as a moment's attention. It may be the time will come when we shall cater more to the needs of the professional and business man who would like, say, half a dozen hives at his suburban residence, from which he may take at his convenience some of the most delicious sweet in the world.

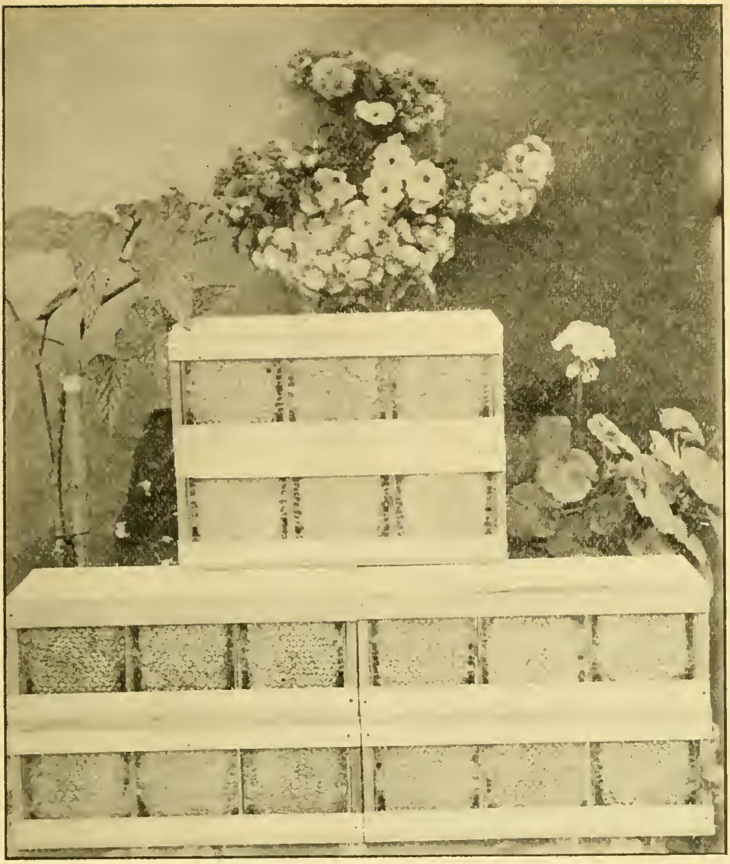
Your method of getting rid of fertile workers is a very good one. I have tried it myself with uniformly good results.

I do not know which queen, referring to your last question, is usually killed; but I do know that sometimes our very best breeders have been supplanted by a worthless inferior virgin which, through mistake, got into the hive instead of her own. I do not believe we can lay down any rule. If one or two bees should happen to attack the intruder, the old queen-mother would be left untouched; but if she should happen to be favorably received it might be a question of the survival of the fittest—a war between a young, vigorous, strong-legged queen, and one which, perhaps, has done a year of service, and may be somewhat weak in the legs. In the scrimmage the bees will probably take a hand and destroy the weaker of the two.—Ed.]

THE APIARY AND THE PRODUCT OF A BEE-KEEPER 65 YEARS OLD.

I herewith send you two pictures, one of my apiary, and one of honey cased for market, as taken by myself, an old man of 65 years. They are not the best, as I have not had many months' experience with the camera. The apiary was taken last spring as the trees were leafing out. The hives you see were all from your company.

Wahoo, Neb. Jerome Barnell.



MOVING TO A BETTER LOCATION.

Would it pay one who is just beginning in bee-keeping in a poor place for bees to move to a locality where basswood, whitewood, and sourwood abound? Don't you think the above-named trees, in addition to persimmon, red-bud, locust, etc., would be a very desirable place? I know of such a place ten miles from me.

J. H. PRILLAMAN.

Simpsons, Va., Feb. 18.

[If you can easily move to a better locality, we would advise you to make the change. Dr. Miller has said that he would not recommend any one to go into bee-keeping very largely, and depend on white clover as his main and almost only supply of nectar. Some seasons basswood will yield heavily while clover will be almost a failure, and again the reverse may be true.

If you have a good business aside from bee-keeping in the locality where you reside, I would not advise you to give it up for bees by going into another locality that may be more favorable. The bee business is rather uncertain as a means of livelihood; and the average person had better have something else to tie to.—ED.]

THE SUBJECT-MATTER OF GLEANINGS; A GOOD WORD FOR DOOLITTLE'S ARTICLES.

I am glad you are going to let your readers tell you what they like in GLEANINGS; I read a bee paper or book for what I can get out of it of *practical* use. Of course, I can devote only part of my time to bees. The world has too much of interest and business for me to devote much time on sentiment or pleasure. I can not spend time to read long articles for what little practicle use I get out of them. Along this line I enjoy Mr. Doolittle's talks best of all. He, every time, clears up a point of interest to me. Next I like the questions and answers. They are in the same line. And I have received enough of value in the discussions of forced swarms to pay me for five years' subscription to GLEANINGS.

M. G. T. JOHNSON.

Binghamton, N. Y., Feb. 5.

FEEDING OUTDOORS NEAR THE APIARY; IS IT PRACTICABLE?

Can I, just before wintering colonies, place sugar syrup or honey in an adjoining garden, about 120 yards away, separated from my apiary by a belt of maples 25 feet high? Would this unsettle the apiary and incite robbing, or can I place food in the apiary itself? All feeders seem to induce robbing. I intend having buckwheat in another garden, and thought to place feed-stands there. I don't sell sugar stuff, but use it only in brood-work, and have all frames marked so as to distinguish. R. MUCKLE.

Clandelborge, Manitoba, Feb. 25.

[It is usually not practicable to feed any syrup of good quality outdoors in open feeders. If syrup of granulated sugar is fed at all it should be almost as thin as water. Years ago we used to feed water sweetened with lumps of grape sugar, without inducing robbing; but let me tell you if you feed the ordinary syrup, two parts of sugar to one of water, you will have trouble. You might be able to feed such syrup if you inclosed the feeder in a box, and allowed an opening so that only one bee could get through at a time. But I would hardly advise this. It makes a disturbance, even worse than feeding inside of the hive. If you feed in Boardman, Miller, or Doolittle feeders, at night, giving the bees most of the syrup before morning, it will cause very little disturbance next day. Feeding always stimulates, and has a tendency to cause the field bees to hunt around, nosing into every thing to see where that big supply came from; and woe betide the nucleus with too large an entrance.—ED.]

KILLING OFF WEAK COLONIES INSTEAD OF WINTERING.

I am a new bee-keeper — that is, I have five swarms. Last fall one of my neighbors who keeps bees advised me to kill my weak colonies that would not winter. I did so, and have four hives with brood-frames partly filled with honey, and partly with pollen, or some such stuff. Part of the honey is very dark. Would it do to put new swarms in the same hives? If not, what can I do with it? In last GLEANINGS I see advised the saving of old comb.

JOHN WALSH.

Stanstead Plains, Quebec, Can.

[Your neighbor gave you bad advice. Where there are only a few nuclei they can usually be wintered quite well in a good cellar, providing they have sufficient stores and the cellar be kept dark. We have wintered many nuclei that way, and consider it is throwing away property needlessly to kill off the bees of such.

Yes, you can use the combs next spring, even if the honey is dark.—ED.]

WHEN TO GIVE FULL SHEETS OF FOUNDATION.

Last fall I took all of the drone combs away from my bees, and now I wish to put whole sheets of foundation in, and do not know when is the best time to do it next spring. Had I better put it where the drone comb was taken out, or put them in the center of the brood-nest. Some of them had one whole comb; some had two combs.

R. H. ELLSWORTH.

Homets Ferry, Pa., Mar. 2.

[I would not give the bees any foundation until they are crowded for room. If you desire to spread the brood for the purpose of increasing the strength of the colony, insert now and then a full sheet of foundation between the frames of brood; but be careful not to carry this too far in cool weather.—ED.]

NOTES OF TRAVEL
BY A. I. ROOT.

CUBAN APIARIES AND THE MEN WHO RUN THEM.

Resuming my story on page 251 of last issue, it is not only turkeys, chickens, ducks, etc., that friend Hochstein has around his home, but they have some of the prettiest white doves in boxes up under the eaves of the house I ever saw. A pair of young doves, almost large enough to try their wings, were there, and they were looking out of their domicil very curiously at the (to them) new world. Some of the folks, just for fun, lifted out one of them and put it on the doorstep outside. The "papa" dove was off hunting food for his youngsters. When he came back and found one of them had gone outside, as he supposed, without parental permission he was "mad as could be," boxed their ears (figuratively speaking), and gave them a good sound scolding, and then pushed them back inside, and just laid down the law, commanding them never to think of even putting a head outside until *he*, with his mature wisdom, decided they were old enough to go outside and look out for themselves. There are lots of interesting things around that Hochstein home at the foot of the mountain. A beautiful spring bursts forth from the rocks just above, and friend Hochstein is planning to use it for irrigation.

It was very windy at the time of my visit; notwithstanding, the bees were just pouring in with loads of sweetness. I think I never saw so many bees coming in with loads in all my life before. When the wind would let up a little they came in from one particular direction through the canyon, down the mountain-side, until the air was almost black with them. And, by the way, boisterous wind, or something else, made the bees remarkably "ugly" that day. I do not know but they blamed *us* for the fact that the wind hindered them in their work—a great deal like complaining human beings, aren't they? Well, I saw by the looks of things that friend Hochstein was getting a tremendous crop of honey from the nearly 500 hives, all in one spot, most of them two-story, and many of them three.

"Friend Hochstein, how much honey have you taken already this season from this apiary?"

"I am not going to tell you, Mr. Root."

"Well, I should like to know *why* you are not going to tell me," said I laughingly.

"Well," replied he, "Rambler asked me that same question last year, and I told him just as I have told you; but, notwithstanding, it got out, and now there is quite an apiary started over here in the south, another on the west, another on the east, and now I am expecting every day somebody will locate just above me on the side of the mountain. Every time they see me take a carload of honey over to the station, they say to themselves, 'Why, that fellow is making money hand over hand,' and then go right straight and start another apiary. I am going to take my honey to the station after dark after this, and I will not tell a soul how much I am getting. I was thinking of starting some out-apiaries myself after a while; but just look at it."

Now, I presume the above is not friend Hochstein's exact words, but something to that effect; and I, for one, protest against this fashion of dropping down with a lot of hives close to a successful bee-keeper. In drilling for oil it may be all right; but where there are miles and miles of good territory for honey unoccupied, what sense or courtesy is there in crowding up toward somebody who is already doing fairly well?

With the tremendous job it is to get honey and supplies to and from the station, one would suppose friend Hochstein would have comparatively full swing, and I think he went away out there just on purpose to be free from bee-keeping neighbors.

Friend H. has several convenient inventions in and about his apiary. One is that he has a door to his honey-house so it opens automatically when you come up to it with a wheelbarrow full of combs of honey. The moment the weight of the barrow gets on a plank that leads up to the door, the door swings open. Then the man who is operating the extractor, by pulling a cord over his head, shuts it up. This arrangement alone saves lots of time and hard work in opening and shutting doors. His son, also, has invented an arrangement to clasp the lower end of the frame while slicing off the cappings. We expect to get illustrations of this later. He also uses very successfully a solar wax-extractor just like the one we have at Paso Real; but in order to have it turn easily so as to face the sun, he has it on a platform that turns on a bolt. I believe somebody suggested, some years ago, taking an old wagon-wheel and fixing it on a post for an axle so it would turn easily, then attach your extractor to this wheel. This makes the whole apparatus swing so easily that you can turn it by just a touch of a finger. Well, friend Hochstein found it was a bother to lift out the square tins whenever they got full of wax; so he has an opening with a piece of gaspipe attached to it that lets the wax run into a suitable receptacle down below the bottom of the solar extractor.

Last, but not least, the broom he uses to brush off the bees is made on a 40-penny spike, the head being inside of the handle of the brush, the sharp end of the spike protruding from the end of the handle. This gives one a good solid tool for prying the frames loose, and a brush for brushing off the bees with the other end of it. I do not know who makes these brooms or brushes; but I think there would be a big sale for them if advertised in the right way.

I think the finest guavas I ever ate (and I think I ate pretty nearly a plateful) were at friend Hochstein's. They grow wild all over his ranch. In fact, some of the finest tropical fruits grow out in the fields or woods, ofttimes wasting their sweetness on the desert air. Guavas are so plentiful and cheap that you can buy a good-sized brick of guava jelly for only a dime.

I know friend H. carries out his threat—at least to some extent — of hauling away, his honey by night, for I rode over to the station between three o'clock in the morning and daylight, on his ox-cart containing a load of honey.[*]

MR. WOODWARD'S APIARY NEAR MATANZAS.

Mr. de Beche told me I must certainly visit Matanzas and Cardenas. He said, after I got hold of Mr. Woodward I would get along all right; but he added that I would not be likely to find anybody who could speak English, on the way to Matanzas. After worrying people along the way about as usual, because I could not speak their language, I finally got hold of Mr. C. E. Woodward in the great store and warehouse of J. Landetta. Mr. W. was just getting into a saddle to visit some one of the seven apiaries; but he put his horse up and went with me over to his home in Guanabana. On the way over, he told me something of his history as follows:

Three years ago he became discouraged about bee-keeping in Florida, and put all of his worldly goods, bees included, on to a schooner, and set sail for Cuba; but when he undertook to land his bees the Cuban officials interfered and said he was transgressing some of their laws. and proceeded to confiscate the whole outfit. He remonstrated, and tried in vain to explain to them that it would be his financial ruin; that the bees would have to be set out on the ground and have a fly or they would all die. Either the Spanish official did not understand or did not care. In desperation he went to Mr. Landetta, a wealthy business man of Matanzas. By the aid of an interpreter he managed to tell his story. Mr. Landetta was touched by the story of the poor man's distress, and proposed to Mr. Woodward to go in company with him in the bee business. Of course, our good friend Mr. Woodward accepted the proposition, for he was like a drowning man catching at straws. Mr. Landetta went to the Spanish officers, and said, "Those bees belong to me, and this man is in my employ. You let him take the bees and other stuff off from that boat."

The Spanish officials grumbled somewhat, but Mr. Landetta had wealth and influence at his command, and they were obliged to submit. We bee-keepers can imagine with what a feeling of relief Mr. Woodward straightened himself up, took a big breath of fresh air (this was Cuban air) as he rolled up his sleeves and went to work. Well, he is at work yet—at least I suppose he is. He had 50 colonies of bees to start with. In three years these 60 colonies with the assistance of 600 three-frame nuclei which he purchased of Fred Craycraft,[*] have been increased to 2000 colonies located in seven apiaries. Friend Woodward now takes care of one of the seven apiaries at his home, and superintends the management of the other six. He told me the greatest part of his time was spent in the saddle, riding from one apiary to the other. His partner, Mr. Landetta, furnishes the capital and he furnishes the brains to manage, or at least they have some sort of partnership that seems to be satisfactory. When I was there they were filling one order that amounted to about $16,000. I believe this was extracted honey to go to Germany.

I now wish to tell you a little about Mr. Woodward's home. His house and apiary are located in an old fruit-orchard or garden. Unlike the rest of the Cuban apiarists, he insists on having every hive located at least seven or eight feet from every other one. In fact, the plan is very much like the hexagonal apiary described in the A B C book. The ground is kept clear of weeds and rubbish by hoeing; and to avoid disturbance from the bees I think most of the hoeing is done by moonlight. They have plenty of moonlight nights in Cuba. and it is a cooler time to work than when the sun shines. I told him I was afraid our American men would make a kick about working nights as well as days—want double pay, or something of that sort. He said he did not find any trouble about getting his helpers to clean up around the hives by moonlight. Several times, you may remember, I have said, "This apiary is the handsomest one I ever saw in all my life." Well, when I was at friend Woodward's I told *him his* was the pleasantest-looking apiary I ever saw in my life anywhere. Our apiary at Paso Real looks very handsome with its mathematical accuracy, but it is right out in the sun. Friend W's is all in the dense shade of tropical trees. His bees are all a fine strain of Italians. Just let me say something to the readers of GLEANINGS right here.

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[*] While I write, the following letter is put in my hand:

Mr. Root:—I hope you did not suffer any ill effects from your buggy-ride in an ox-cart through the rain. Next time we will take a canvas cover along.
Punta Brava, Cuba. C. F. Hochstein.

The above brings vividly to mind the experiences of that night in the ox-cart. When we started out, the moon and stars were shining only as they do shine away down in that tropical land, and every thing was lovely. But an hour later the clouds came up, and the rain began to fall; and as I had no clothing but a new Cuban suit of thin linen I was in somewhat of a predicament. But it did not hurt me any, for the sun shone out bright soon after rising.

[*] Mr. Fred Craycraft, whom many of our older readers will recognize, is now a custom-house officer in Havana He has been a bee-keeper all his life, and wrote articles for *Juvenile Gleanings* more than twenty years ago. Well, now I am going to tell a story of what can be done in Cuba. If I do not get it straight, friend Craycraft will have to correct me. A year ago last January he took 100 nuclei, to see what he could do with them. Before July, from these 100 he sold to Mr. Woodward the 600 three-frame nuclei, and had 150 left He reared all the queens himself, with the exception of 100 which he purchased of J. B. Case, of Port Orange Fla. Mr. Woodward paid him $1500 for the 600 nuclei, or $2.50 each.

Ernest has been pretty thoroughly criticised, not only in GLEANINGS, but in other bee journals, for suggesting that onr red-clover queen was worth $200. Now, mind you, I am not going to advertise *our* queens this time. Friend W. got his best queen of our veteran friend Doolittle. He paid $10 for her, and then paid for a nucleus besides to ship her in, so as to have her come in good order ready for breeding. He has stocked the whole apiary I saw, with queens from this Doolittle queen. The hives are mostly two-story, and some of them three-story. The bees are nicely marked, gentle to handle, and good workers.

"Friend Woodward, how much do you suppose that Doolittle queen has been worth to you—that is, how much money has this apiary given you because of the fact that every queen is of that Doolittle strain instead of being of the hit-and-miss kind which most of the Cuban bee-keepers get along with? Haven't you actually saved $200, the price Ernest put on our choice queen?"

"Why, Mr. Root, that Doolittle queen has been worth *five hundred dollars* to me, counting the queens I have reared from her that have been used to stock others of our apiaries; and I am testing some of her daughters with the view of using them for breeders when she is gone."*

Now, friend Woodward may have been a little extravagant in the above; but I will leave it to our veterans in bee culture—is it not possible that a bee-keeper can be benefited to the extent of hundreds of dollars by *starting business* with a queen that is superior as a breeder?

Mr. Woodward has another trick in extracting that may not be new, and, in fact, I think I have heard of it before. We will suppose you have a two-story hive and a strong colony of bees, and the combs are nearly ready to extract — that is, the bees have begun capping some of them in the center. Now, instead of extracting these combs and putting empty ones in their place, suppose you lift this upper story up and put a story of *empty combs* right under it; while the bees are finishing the capping of the top story, they will have the second one pretty well filled with raw honey; then when the top story is ready to extract, lift up the second, and put another story of empty combs under it as before.

Friend W. uses ten-frame Dovetailed hives containing Hoffman frames. He says that, where an apiary is often intrusted to a man who is not very much experienced, he very much prefers Hoffman frames, for then one can not make bad spacing. Now, Moe, Hochstein, Howe, and perhaps all the bee-men west of Havana, will not have a Hoffman frame on the premises. What are you going to do about it? Mr. Woodward is certainly successful; his apiaries are neat and tidy; he gets the honey, and his bees are so handled that they are not cross to work with. His combs are all made of full sheets of foundation on wired frames. His wife had been making foundation, with the help of a Cuban boy, the day I arrived.

By the way, friend W. has a model home. It is more after the fashion of the Florida buildings. His library and sleeping-rooms are upstairs; and, while I think of it, I believe very good authority has decided that, in the exceedingly damp climate of Cuba, an upstairs sleeping-room is to be preferred. The air is so damp most nights—that is, there are such heavy dews—that, if you should leave a sheet on the clothes-line over night, in the morning it would be almost as wet as if it had been dipped in water.

Just one more thing about friend Woodward's home. Before we got into the house a pet parrot named Catara Real hurried out of the house to meet him with the most endearing expressions of love. I just had to have a good big laugh to see the parrot make such an ado at the sight of her owner. As she talked Spanish I could not tell what she said; but she climbed up his trowsers leg, got on his shoulder, rubbed her head against his face and neck, and nibbled his ears with her bill, and talked and talked and *talked*. She would never bite him too hard; but if anybody else touched her, or tried to, she would go into a fury right away. When he was out in the apiary among the bees, or when he was attending to his correspondence, she remained perched on his shoulder, and kept calling him loving names. At night, when it was bedtime, he put her up into a perch overhead; but she kept on talking to herself, and several times in the night I heard her familiar voice. You see, parrots in Cuba are almost in their native home. They would go into the tops of the tallest trees if their wings were not clipped.

Friend Woodward has a hive on scales, such as I pictured in the A B C book; and he watches these scales as a gardener watches the thermometer or barometer. When I was there, the hive on the scales was showing a yield of three or four pounds a day. If I am correct, he said he had secured as much as 300 lbs. of comb honey from one hive in one season. But a large yield of comb honey almost always means reducing the colony in strength until it is almost ruined; whereas, when the colony is run for extracted honey the queen has room to keep right on laying and raising brood. Several hives gave over 500 lbs. of extracted honey in a season. As a rule, queens do not last as long in Cuba as here in the North. The strain upon them, consequent on laying every day in the year, uses them up in about half the time it does here, where they have the winter for rest. One of his apiaries near Matanzas is very much like the one I have mentioned. A bright young American boy has charge of it. He showed me a hive that had given 322 lbs. this season, and the two upper stories were full of honey, and ready to extract. I have thought best to add a letter received from friend Woodward after I left:

---

*After the above was dictated, Ernest received the following from friend Woodward. It is a little bit of a joke on your humble servant, but it sometimes does us good to get a glimpse of the way others see us.

MR. E. R. ROOT:—Your father did make me a call (which which was all too short), but I could not persuade him to stay longer. I saw very soon that he was a lover of the honey-bee, for he was in my apiary about all the time he was at my home, and it seemed to me he was a man who was always in a hurry. He would walk from one hive to another like lightning, and would take in the whole thing at a glance. I hope to see him again soon. C. E. WOODWARD.

Guanabana, Cuba, March 6.

> *Friend Root:*—I have that last row of bee-hives put up in fine shape, and the apiary is all cleaned up, and looks nice indeed. I shall finish extracting in three days more, and that will make 28 tierces (of 1200 lbs. each) of honey up to date. I will keep you posted on my own apiary the coming season. I shall do some experimenting this coming season By the way, Bro. Root, I see in the new A B C book, that the bees in balling the queen sting her to death. In all of my experience with bees I have never known a queen to be stung by the bees balling her; but instead of stinging her they smother or suffocate her; but I have never found a queen, after she has been balled, to be of any value I have got foul brood all wiped out of my apiary, and I hope it will never show itself again.
>
> The bees are getting a little honey at present. The scales indicated one pound to-night, the first time in several days. But brood-rearing has been kept up to a high point; so you see again I'm not troubled about my bees not having plenty of brood.
>
> I am having young queens mated right along with no trouble Of course, I do not save every queen, but I save 90 per cent of them, and I did no better than that in Ohio or Florida. C. E. WOODWARD.
>
> Guanabana, Cuba, March 5.

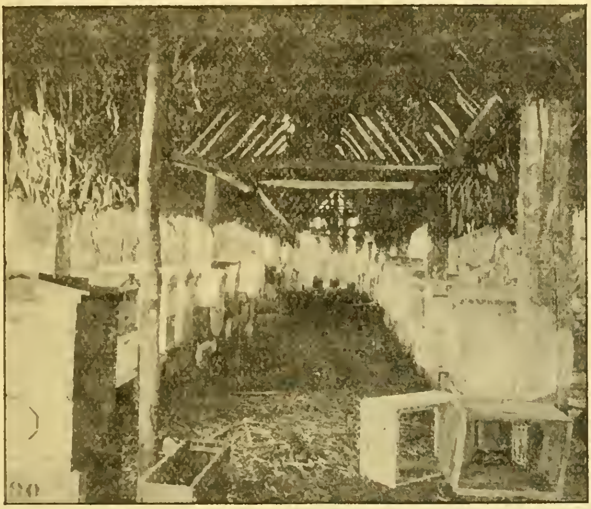
In speaking of Mr. Woodward's apiary I should have mentioned that he starts his nuclei in little boxes that hold four regular L. frames. He places these little boxes right where he is going to plant his next hive; and these boxes take the place of the regular hive until the queen has filled the combs with eggs, and the bees begin to be crowded. Then the box is taken away, and a one-story hive is put in its place. I saw these boxes at Mr. Fred Somerford's, and I believe they are used considerably in many apiaries. It not only answers the purpose of a full hive until the four combs are crowded with bees, but is lighter and easier handled. They are usually made of ⅜ or ½ inch lumber.

Now that I have said so much about handsome and convenient apiaries, I feel some hesitation—in fact, I *ought* to feel it—in speaking again about "the best-arranged apiary I ever saw." Can't help it, however. When I got to Mr. Fred Somerford's I spent two hours in his apiary, before he got home, and I was obliged to conclude he had an apiary that was at least in some respects ahead of any thing else I ever saw before. This apiary at Catalina was originally planned and built by our good friend Mr. de Beche, and he sold it to Mr. Somerford. It is an old fruit-garden. There are orange and banana trees, guavas, and ever so many other kinds of fruit growing so thick that the whole apiary is a dense shade. There are two rows of hives about ten feet apart, and these hives are pretty close together; in fact, I found it hard work to find an opening between two hives so I could readily walk through. You see I am taking back some things I have recently said about having each hive with space enough so one could walk all around it. There is a purpose, however, in having the hives so close. The alley between the back ends of the hives is about ten feet wide, as I have said, and it is kept perfectly clean, and the ground is smooth and level, so you can run a wheelbarrow or a cart without a bit of trouble. The reason the bees do not get mixed in regard to their entrances is on account of the dense shrubbery all around the entrances. The bees have to twist through nooks and crannies, each one to find its own home, and this fixes its location so it never misses it.

Now, the "crowning" part of this apiary is a shed of palm-leaves with the eaves so low that they come down pretty near the front ends of the hives, reaching beyond the entrance so that no storm blows in enough to wet the hives. His hives are perfectly protected from the weather, hence they need no paint; in fact, some writers have said they are better off without paint. Why, to get right down to it, this is almost a house-apiary, and I believe it is the first really successful one I have ever found. One remarkable thing about it is that there no bees under the shed in the alley. For one thing, it is too dark; and another is, it would be a little difficult for them to get inside on account of the thick shrubbery around the entrances; notwithstanding, the rubbish is cleared away enough so the bees have but little difficulty in getting in and out of their hives. The advautage of this arrangement is that the apiarist is always under shelter from sun and rain; in fact, I think he might extract right while it is raining. It is so dark inside that the bees hardly ever come in to sting the operator. When they are shaken off the combs they dart out under the eaves and go in at their own entrance. I was all around without protection, as I have said, for an hour or two; and, even though the bees were busily at work, not one attempted to sting me. There are three sheds in all, with perhaps 50 hives in a row on each side, making 100 hives to each shed. The sheds are arranged in the form of a letter E. If he had built one on the third side he would have had a regular hollow square.

The extracting-room is built at one corner. The combs are wheeled up an inclined approach so as to get into the upper part of the extracting-room, letting the honey go down through into a tank and then into barrels by gravity. To understand the arrangement better, I give a photo, taken by our departed friend Rambler. It might also be worth while for you to turn back to page 734 and read the description.

On p. 734, Sept. 1, Rambler tells us that, although Fred Somerford has used four and six frame extractors for a dozen years, he has settled down on a two-frame "Novice" machine. In fact, it is the very thing that your humble servant, A. I. Root, devised, and has recommended for years past. It is very much cheaper than any other extractor; It is light to handle, and ever so much easier to carry around in a wagon to out-apiaries; and I have kept saying for years that one who is an expert with that old Novice L. frame extractor could get out more honey in proportion to the help employed than with any of the big ones. Mr. Somerford told me that he has for some time wanted to express his approval of the improved Novice extractor recently purchased. He says it works ever so much easier than his old one, and yet the price was only $8.50.



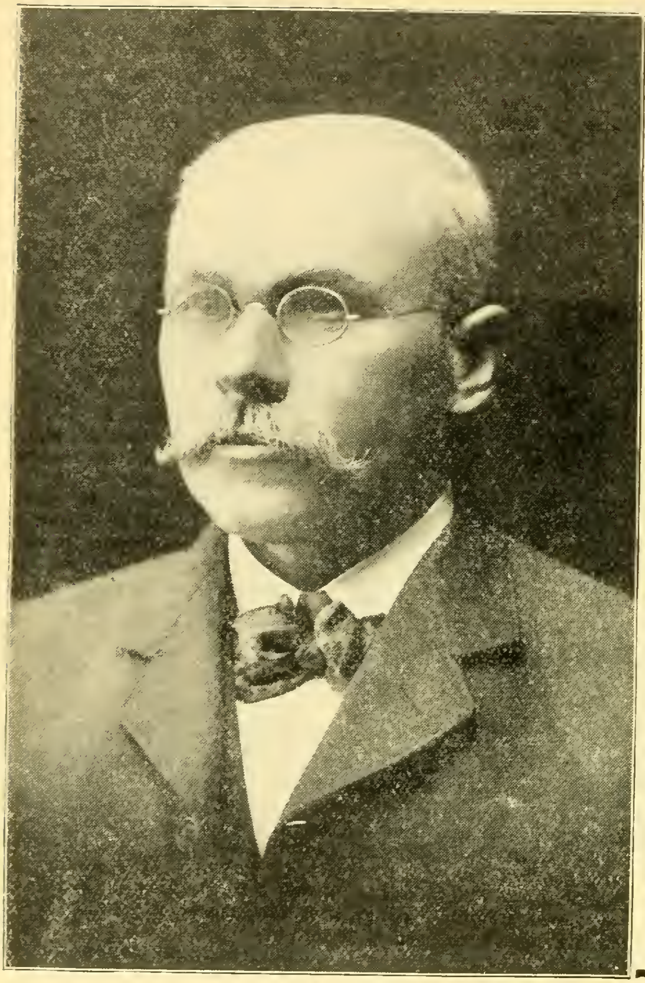
When I wrote up my visit of two days to Güines I did not mention two apiaries I visited. One of them belongs to Mr. de Beche. It is about half way between Havana and Güines. I hope my good friend Mr. de Beche will excuse me if I say there is not very much "style" about this apiary that is managed by a young Cuban who does not talk English. He does pretty much all the work himself, and manages to "round up" at the end of the year with a very good profit indeed, on the credit side of the books. Mr. de Beche told me that I would find many things to criticise; but he added that, so long as the apiary yielded him good returns — a much better per cent than some where high-priced Americans kept every thing in "good order" — he thought I ought to be a little bit easy in my criticisms. By the way, it behooves all of us northern people to go slow about finding fault with the way people do things in other climates. This young Cuban, for instance, will take out not only frames of honey, but filled sections from hives, and close the hive up without putting any thing in its place. At his next visit there are, of course, pieces of beautiful snowy-white comb attached to the cover right above where the section was left out. The boy tears off these pieces of comb and throws them in a heap in the honey-house, and he had a pretty good-sized heap when I was there. The owner replies, "What does this matter when one gets a greater yield of wax than from almost any other apiary, and 1 lb. of wax is worth about 16 times as much as 1 lb. of honey?" "By their fruits ye shall know them."

Another thing, this boy, when he was in a great hurry, did not bother to smoke the bees out of the way or smoke them off when he shut the cover down. The consequence was, the bees began to sting before I got through the gate leading to the apiary; but on the other hand, as before, he gets more honey in proportion to the *pay* he receives than almost any other apiarist. I wonder if he has not run across the "Lightning Operator," Harry Howe, and got some hints, that enable him to get through with the work in an apiary expeditiously.

When near the town of Güines I visited another apiary, also managed by Cubans, and, I believe, quite successfully. It belongs to Dr. Toribio del Viller, of Güines. My friend Senti took me to the doctor's home and introduced me. When the doctor arose from his seat he said smilingly in substance, "Why, my dear Mr. Root, it affords me *very* great pleasure to look into your face and take you by the hand. Not only do I owe to you all I know about bee-keeping and all I have accomplished on that line, but, my dear sir, I am actually indebted to you for the fact that I know enough of the English language to speak, read, and write it, at least to some extent."

The doctor then explained that, some years ago, he became very much interested in bees. Knowing no language but the Spanish, he procured all the bee-books in that tongue; but they were so very unsatisfactory, and so much behind the times, as he found out by seeing the work of a few American bee-keepers who had just located near there, that he bought the A B C book, even though he could not read it. Of course, he could look at the pictures, and with the help of an interpreter he got hold of enough to make him really thirsty for more; and he actually learned English in order that he might read the A B C book; and, of course, he was delighted to find what a new world was opened to him in the line of other literature when he could read English.

Now, friends, if you are still interested in what I have been telling you about the apiaries of Cuba and their managers, it will pay you to read again what Rambler wrote last year.



This Man

has kept bees 25 years. He makes sure of a crop by having out-apiaries widely scattered. He has learned how to manage them with very few visits. One 50 miles from home, established two years ago, is visited only four times a year, yet the profits have averaged $150 a visit. He tells all about it in the Bee-Keepers' Review for March. Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the holder to the Review one year for only 90 cents.

W. Z. HUTCHINSON,
Flint, Mich.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States Untested queens from these races, 3 and 5 banded Italians Cyprians, Albinos, Holylands, and Carniolans bred in their purity from 5 to 35 miles apart, February and March, $1.00 each, or $9 00 per dozen. All other months, 75c each, $4 25 for six, or $8 00 per dozen. Tested queens of either race, from $1.50 to $3 00 each. Breeders from $3 50 to $10.00 each 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**
P. O. Box 79, Beeville, Bee County, Texas.

$QUEENS--$BEES--NOW.

A. L. Swinson, Queen-breeder, furnishes best to be had in U. S. **First-handed,** Warranted queens, $1.00 Tested, $1.50. Breeders, $5 to $10 **American Albino Italians,** and **Adels** mated to **Albinos.**

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We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos. are bred for business. Tested queens, $1 50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

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The Jennie Atchley Co., Box 18, Beeville, Tex.

The Choicest of Tested Queens

By Return Mail $1.00 Each.

Vigorous and prolific queens, reared from the best of Imported and Home-bred mothers, whose progeny is the best of honey-gatherers Safe arrival and satisfaction guaranteed.

J. W. K. Shaw & Co., Loreauville, La.

QUEENS Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa., writes: Your bees beat all the rest, now send me a breeder of the same kind.

A Norton, Monterey, Calif., writes: Your stock excels the strain of Mr. ——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens Before July First.

	1	6	12
Selected Warranted	$1 00	$5 00	$9 50
Tested	1 50	8 00	15 00
Select Tested	2 00	10 50	
Extra Selected Tested—the best that money can buy	4 00		
Two-frame Nuclei, no Queen	2 50	14 00	25 00

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Carniolans and Italians.

Choice Queens a Specialty.

Having added extensively to our queen-rearing plants in the North and the South we can furnish any number of queens on short notice.

Carniolans. Very prolific, hardy, gentlest bees known. Great comb-builders. Sealed combs of a snowy whiteness. A worker on red clover.

Italians. Gentle, prolific, swarm very little, fine workers, and a red-clover strain.

The Carniolan-Italian Cross. A cross giving the combined qualities of each race, are hustling workers, the coming bee for comb honey.

1 untested queen, $1.00; 6 for $5.00; 12 for $9.00. Tested, $1.50. Best breeder, $3.00. Best imported breeder, $5.00. For full colonies, one or two frame nuclei, large orders for queens, send for descriptive price list. Orders booked now will be filled when desired.

F. A. Lockhart & Co., Caldwell, N.Y.

Leather-colored Italians For Sale.

¶My bees were awarded 1st premium at the Minnesota State Fair in 1902 and 1901. Queens guaranteed in quality and transportation. In standard 8 or 9 frame hives, $5 00 each on car. A reduction on lots of 20 and over. Ready for shipment April 10.

W. R. ANSELL, Mille Lacs Apiaries,
Milaca, Minnesota.

Root's Goods in Central Michigan!

Sold at their prices. Present given with each order amounting to $2 or over. List sent free.

W. D. Soper, Rural Route No. 3, Jackson Michigan.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho. Feb. 16. 1903.*

Prices of Queens: Each, $1.00; 12, $10.00 Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

For 1903 | You Require Supply **PERFECT QUEENS**

Until further notice, to keep up with orders for Golden queens from old customers who find them to be splendid workers, I shall discontinue the other yards. I can send Holy Lands and Carniolans mated in this yard at the same prices These are good crosses. Untested queens, $1 00 each; tested, $1.25. A few choice breeders, $2.50 each.

GEO. J. VANDE VORD, Daytona, Fla.

"This for That" Trade anything you have for anything you want. Get our gigantic paper which prints thousands of exchange advertisements. Six months' trial subscription, 10 cts. "THIS FOR THAT" PUB. CO., 1342 Star Bldg., CHICAGO.

Victor's Superior Italians.

In opening my advertisement this season, I wish to thank my many friends for their frequent inquiries and orders for queens during the absence of my ad. since July last, which was caused by protracted ill-health (rheumatism and indigestion). I am proud to say that I hope I am permanently cured. I am ready with the same old true and tried stock of Italian queens and bees as of old. My queen-mothers in yards No. 1 and 2 are serving their fourth year in that capacity, 1900-1903. Their daughters have pleased The A. I. Root Co., W. Z. Hutchinson, O. L. Hershiser, G. M. Doolittle, R. F. Holtermann, F. B. Simpson, and many others prominent in apiculture. In fact every customer has been pleased as far as I have heard. I COULD FURNISH HUNDREDS OF THE VERY STRONGEST TESTIMONIALS, but space forbids. Practically all the queens that I have sent from these yards were daughters and grand-daughters of the two "Oil Wells," as we often call them. Untested queens, ready April 15, $1.00 each; select untested, $1.25 each; tested, $2.00; breeders, $3.00 to $7.00. Send for illustrated price list.

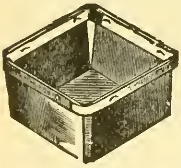
W. O. VICTOR, Queen Specialist, **WHARTON, TEX.**

Queens

My specialty is queen-rearing I rear two strains only—Long-tongue Red-clover Three-banded and the Golden Five-banders that work red clover as well as the three-banders. These two strains are the best bees in this country, all things considered. I furnish more dealers with queens than any other breeder in this country. Why? Because the queens give their customers the best satisfaction I insure all to be purely mated. Untested, 75c each; tested, in April, $1.25—after April, $1.00 each. My former address was Caryville, Tenn., but my queen trade has doubled for several years and I have moved to Texas. Remit by postal money order to **Daniel Wurth, Karnes City, Karnes Co., Texas.**

Fruit Packages of All Kinds.

—ALSO—



BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

HONEY-CANS!

The new friction-top honey-cans have been made the standard honey-package of Texas by the Texas Bee-keepers' Assoc'n. The 3-lb. cans, 20 to a case; 6-lb. cans, 10 to case, and 12-lb. cans, 10 to case. These cans beat any package yet discovered. Write me for prices or the name of carload dealer nearest you.

Udo Toepperwein,
San Antonio, Texas.

Do You Buy Queens

If so, it will pay you to investigate my claims. I breed from best honey-gathering stock, and rear queens by best-known methods. I guarantee good queens, and beautiful, gentle bees. Some of my customers have bought 100 to 300 queens per year for *their own yards*. Write for circular and information. Untested queens, $1.00; $9 00 per dozen; tested, $1.25.

J. B. CASE, Port Orange, Fla.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address
MALAN BROTHERS, Luserna, San Giovanni, ITALY.

Ontario Bee-Keepers

will be pleased to learn of the establishing of a depot for the distribution of the celebrated line of ROOT'S BEE-SUPPLIES from the Capitol City. By placing your order with us you will save the delay and inattention which is not uncommon with the importation of small shipments from the States.

We shall keep on hand a large stock. Give us a list of your requirements, ask also for our bee-catalog.

E. Grainger & Co.,
Florists,
12 Yonge St. Arcade. Toronto.

BEES FOR SALE.

Sixty-five colonies of bees, forty-six of which are in Root's dovetailed hives, the remainder in chaff hives. Apply to **James McKay, Tuscola, Mich.**

Do You Know that you could come nearer getting what you want, and when you want it, from the New Century Queen-Rearing Co. (John W Pharr & C. B. Bankston), than anywhere in the United States? Untested, 50c.; tested, 3 and 5 band, 75c; all other races, $1.00. Send for circular. **Berclair, Goliad Co., Texas.**

Bargains in Trees.

100 No. 1 (5 to 7 ft.) Kieffer Pear Trees for $12.00, f. o. b. Others equally cheap. Will be pleased to quote.
E. A. BOAL CO., Hinchman, Mich.

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GALVANIZED STEEL
F.B.W. Co.
OUR SPECIAL LINE
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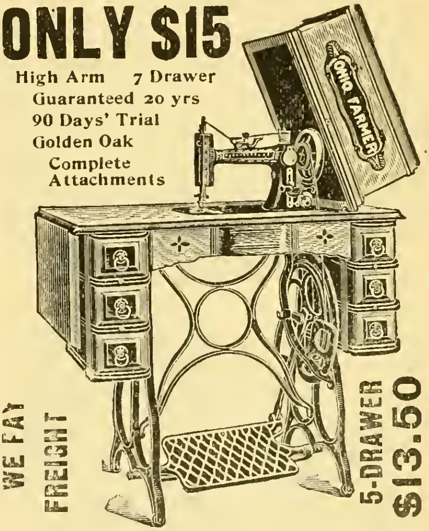

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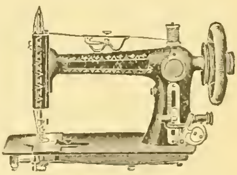

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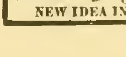

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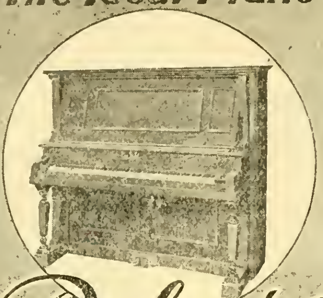

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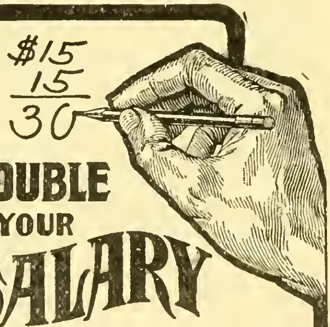

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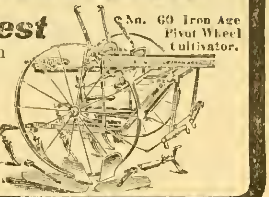
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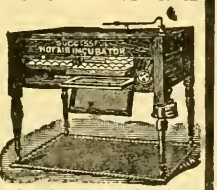

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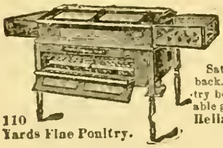

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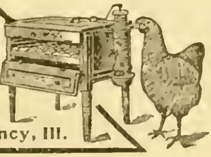

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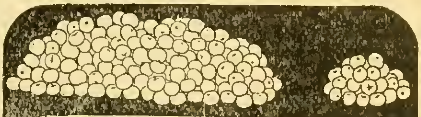

Actual Results

of the advantages of spraying are shown in above picture. The two piles of apples came from the same number of trees in the same orchard row. The big pile from sprayed trees. Pictures taken from actual photographs.

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bucket, knapsack, barrel, hand and power, are made by the undersigned, inventors and sale owners of many new valuable spraying fixtures and features. Write for free catalogue and booklet on insects, plant and fruit diseases.

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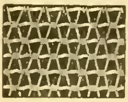

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Capacity : 100-mile Gasol ne-tank.

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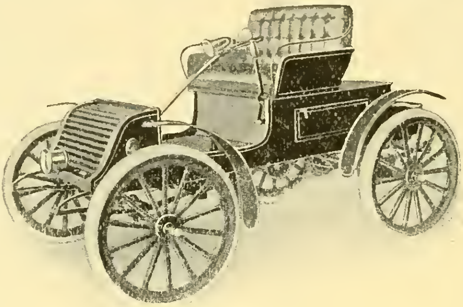

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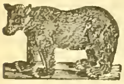

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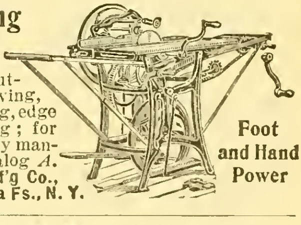

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Books for Bee-keepers is a booklet of 16 pages which gives a complete list of bee-books, including German and French bee-books and translations; books on fish-culture, strawberry-growing, greenhouse construction, gardening, etc.

Bees and Queens is an 8-page booklet containing much valuable matter on the subject of queens ; reasons why they don't lay ; test of purity, etc. It also names price on imported and domestic, Italian and Carniolan queens, nuclei and full colonies.

Facts About Bees is a 72-page book by F. Danzenbaker. It is of especial interest to producers of fancy comb honey. It deals chiefly with the Danzenbaker hive; drawings are used to show the construction of the hive and the manipulations to secure the best results. A number of pages are devoted to reports of bee-keepers who have used this hive. Ninth edition now ready. Mailed for 2-cent stamp.

Outfits for Beginners is a little pamphlet giving the initial steps necessary for one to make a successful start in bee-keeping. It also includes a number of outfits, and names prices of same.

Food Value of Honey is a 14-page leaflet by Dr. C. C. Miller. It tells why honey should be eaten in preference to other sweets, and includes many cooking recipes in which honey is used. This is intended for free distribution by producers to stimulate a greater demand for the sale of their honey. It can be printed with the producer's card on front cover and advertisement on the back, very cheaply, if desired.

Seed Catalog. This lists seeds for the garden, seed potatoes, basswood seed and trees, alsike, white Dutch, medium and mammoth red-clover seed, alfalfa, sweet and crimson clover seed, buckwheat, rape, cow-peas, turnip, sunflower, soja beans, and coffee-berry, borage, catnip, dandelion, motherwort, figwort, mustard, spider-plant, portulaca, Rocky Mountain bee-plant, sweet peas, and other seeds; thermometers, barometers, powder-guns, insecticides, tobacco-dust, sprayers, hot-bed sash, starting-boxes, potato-planters, transplanting-machines, etc.

Rubber-stamp Catalog illustrates and describes self-inking stamps, molding and block stamps to be used with ink-pads, Model and U. S. band daters, ink-pads and ink for renewing the same, interchangeable stencils, metal-bodied rubber-type and holders, and printing wheels.

Label Catalog includes samples of one, two, and three color work; also labels printed on three colors glazed paper; price lists for the printing of circulars, catalogs, letter, note, statement, and bill heads; shipping-tags, envelopes, business cards, etc.; display cards and caution cards for shippers of honey, etc.

Spanish Catalog is an abridged edition of our regular catalog of Bee-keepers' Supplies, and is of interest to Spanish readers only. Give us the names of any of your Spanish friends interested in bee-keeping.

The A. I. Root Co., Medina, Ohio.

FREE to All HOUSEKEEPERS!

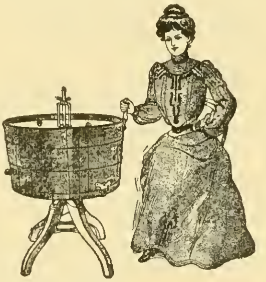
THE "1900" BALL-BEARING FAMILY WASHER

A Wonderfully Simple Invention that Cuts in Half Time, Labor, and Expense of Washing Clothes.

No More Rubbing or Stooping--Monday's Drudgery No Longer to be Dreaded.

EVERY HOUSEHOLD in the LAND CAN HAVE ONE FREE

In order to prove to the most skeptical that the "1900" Ball-bearing Family Washer is unquestionably the greatest home labor-saving machine ever invented, we will send you one absolutely free without deposit or advance payment of any kind, freight paid, on 30 DAYS' TRIAL. If you like it, you can pay for it either in cash or on the installment plan at the end of the trial. If you don't like it, all you have to do is to ship it back to us at our expense. You run no risk, no expense, no obligation whatever.



The 1900 Ball-bearing Washer is unquestionably the greatest labor-saving machine ever invented for family use. Entirely new principle. It is simplicity itself. There are no wheels, paddles, rockers, cranks, or complicated machinery. It revolves on bicycle ball-bearings, making it by far the easiest-running washer on market. No strength required, a child can operate it.

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We receive constantly thousands of flattering letters from people who have used the "1900" Washer. They are all unsolicited and must naturally be sincere. We shall be pleased to send to any one writing for it our book of testimonials, which are guaranteed to be genuine and exact copies of originals on file at our office. Among the recent letters we repropuce the following:

Peoria, Ill., Sept. 2, 1902.

I have given the washer a good trial, both with my washing and bedding. It is the best machine I have ever used for blankets; in fact, I think it is the best all-around washer I ever heard of. I would not do without mine. Mrs. Lillian Sellers.

Washington D. C., Sept. 8, 1902.

You will find enclosed payment for the "1900" Washer. It fully comes up to our exoectations, and is all that you have claimed for it. We will take great pleasure in recommending it to all who wish to avail themselves of one of the greatest labor-saving devices ot modern times for domestic purposes. Wm. F. Salter.

East Plymouth, O., Feb. 2, 1902.
Postoffice, Ashtabula, Ohio.

We have been using the "1900" Washer since May 15, 1900. Have done over 1200 washings, and I think it is good for as many more. We do family work from Ashtabula. We have used eight different machines, and the "1900" beats them all for good and fast work and durability. Geo. N. Burnet.

Hart, Mich., Aug 25, 1902

Please find enclosed money-order to pay for my washer in full. We are well pleased with the washer. A great many people have looked at it. My mother, 83 years old, and I, who am a cripple in a wheeled chair, have done our washing in it for the last three weeks. Mrs. Alice Rouse.

4203 Troost Ave., Kansas City, Mo., May 14, 1902.

I have given your washer a fair trial. It is the best washer I ever saw. It has washed our heavy blankets with ease. I washed them last spring and rubbed more than an hour and yet they had to go through again, but the "1900" Washer cleaned them thoroughly clean. We do our washing very quick, and have no tired-out feeling as of old. I wish every lady had a washer. Mrs. J. L. Banner.

It costs nothing to try the "1900" Washer. It is sent to any one absolutely FREE on 30 days' trial. We pay freight both ways. No money required in advance. Send for book and particulars to

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SLUG SHOT kills currant-worms, potato-bugs, cabbage-worms, and insects on flowers; used 22 years successfully. **Sold by the Seed-dealers.** For booklet on Bugs and Blight, address

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Also **Bone Mills** for making phosphate and fertilizer at small cost for the farmer, from 1 to 40 horse-power. Farm Feed Mills grind fine, fast and easy. Send for circulars.

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By Our Business Manager

ST. PAUL BRANCH.

Mr. Acklin, in charge of our St. Paul Branch, although obliged to be absent two months the past winter, is taking care of the business at St. Paul as usual, and will soon be joined by Mrs. Acklin and Ethel, who have been spending the winter in California, and are returning much improved in health and strength. Mr. and Mrs. Acklin have served the bee-keepers of Minnesota so well during the years since they began handling Root's goods that they are held in high esteem, which is well merited.

BEESWAX WANTED.

We are still in need of beeswax, and have decided to raise our offer a cent a pound. We will pay, until further notice, 30 cents cash, 32 cents trade, for average wax delivered here. We shall be very much surprised if the price goes any higher this season. We are using considerable imported wax this year. As a rule the price in Europe is so much higher than it is here that little imported wax comes to the United States; but this year the tables seem to be turned. The importation of wax will tend to keep the price from going any higher. If it does go higher the price of comb foundation will have to be advanced again.

A SHORTAGE OF SECTIONS.

So far as we can learn, all manufacturers of sections are in about the same fix. The supply of dry white basswood suitable for making sections has been very short. We have paid fancy prices for quite a time to keep our machinery going at a moderate rate. Our surplus stock of sections is about all gone, and we can not crowd our section machinery for over a month yet, or until the new cut of lumber is dry enough to use We have tried to buy from several other manufacturers in order not to get behind on orders for sections, but find they are likewise short of sections and dry lumber. It is early in the season yet, and few orders have been delayed as yet; but if we should have an old-time honey-flow this summer, as we have every prospect of having, there is bound to be more or less disappointment in getting sections later in the season. We do not believe there will be enough to go around. We have quite a little colored basswood which will make just as good sections as the white; but we would not dare to send them out as No 1, although they would be far better than sections made of new lumber not properly seasoned, or of lumber dried in the kiln. Bee-keepers are too fastidious in the matter of color. Were it not for this senseless fad there would be plenty of lumber for sections.

BUSINESS BOOMING.

If the volume of business handled is a fair indication, this bids fair to be one of the heaviest seasons we ever knew. We got started early last fall, loading up our dealers in the hope that, when spring came we would be in better shape to take care of orders promptly. But, notwithstanding the fact that, up to Jan. 1 we had shipped two dozen more cars than we had the year previous, we are at this date as far behind as ever on carload orders. Since September last we have shipped 87 cars, and we have orders ahead of us for over fifteen more, most of them urgently needed. The reports from dealers indicate a large increase in the amount of goods sold over former years in most cases We are doing our best to turn out the goods as needed; but there is more or less delay on carload orders from dealers.

SECOND-HAND FOUNDATION-MILLS.

We still have on hand a good assortment of second-hand foundation-mills, which we list as follows. Any one desiring samples from these mills, or further particulars, we shall be pleased to supply on application.

No. 014, 2x6, hex. cell, extra-thin super. Price $8.00.
No. 037, 2x6, hex cell, ex. thin super, good. Price $10.
No 2132, 2x6, hex. cell, thin super. Price $10.
No. 2227, 2x6, hex. cell, thin super. Price $10.
No. 2275, 2½x6, hex. cell, ex. thin super. Price $10.
No. 050, 2½x12, round cell, medium. Price $12.
No. 044, 2x10 Pelham, nearly new. Price $6.
No. 034, 2¼x12½, round cell, very old style, in fair condition. Price $10.
No. 051, 2x10, round cell, medium brood. Price $10.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please ; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Comb to render into wax; will pay cash.
A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To sell or lease for this season, 47 colonies of bees in good location.
J. B. SUMMERS, Berthoud, Larimer Co., Col.

WANTED.—John, some new ginseng seed. Mine are the oldest that can be found.
A P. YOUNG, Cave City, Ky.

WANTED.—Having facilities for rendering wax by steam, I will pay cash for old comb.
N. L. STEVENS, R. D. 6, Moravia, N. Y.

WANTED.—To exchange 15 S. C. White Leghorn eggs, for tested Italian queens.
C. L. BROOKS, Deansboro, N. Y.

WANTED.—To exchange or sell 50 colonies of Italian bees, for honey or cash.
DAVID DANIEL, Hawthorn; Pa.

WANTED.—To sell single comb White Leghorn eggs for hatching at $1.00 for 26; $3.00 per 100
J. P. WATTS, Kerrmoor, Pa.

WANTED.—A Barnes machine of the latest model.
H. H. JEPSON, Medford, Mass.

WANTED.—To exchange pure Barred Rock eggs, 15 for 1 tested queen or 2 untested; $1.50 value. Russel male.
JOHN C. STEWART, Hopkins, Mo.

WANTED.—To sell a Deering binder in perfect order, used two years: price $60.00.
C. UPTON, La Grange Ville, Dutchess Co., N. Y.

WANTED.—To sell farm of 51 acres; also 33 stands of bees and fixtures in basswood and white clover country.
WILLIAM FOX Greenwood, Wis.
Clark Co. R. D. No. 2.

WANTED.—A good reliable bee-man, competent to take charge of apiary. Must be of good habits. State experience, and wages wanted. Name parties for reference.
W. P. MORLEY, Las Animas, Colo.

WANTED.—In exchange for nursery stock, bee-supplies of all kinds, including 30 extracting bodies complete with combs.
E. A BOAL CO., Hinchman, Mich.

WANTED.—100 or 200 swarms of bees in 1-lb. cages. Must be cheap. Send for my new 1903 queen circular. Will pay cash or trade incubators cheap.
G. ROUTZAHN, Biglerville, Route 3, Pa.

WANTED.—To sell 20 colonies Italian bees in L. hives, warranted strong in bees and plenty of honey; $1.00 per colony; percentage off on 5 or more.
F. P. CRATHERMAN, 623 St. Louis St., Lewisburg, Pa.

WANTED.—To exchange Encyclopædia Britannica, for any thing that I can use in bee supplies; 26 volumes, index, and guide; good condition, 1896.
RUFUS CHRISTIAN, Meldrim, Ga.

WANTED.—To exchange or sell for cash, selected, second-hand 60-lb. cans, practically as good as new, for 35 cts. per case f. o. b. Chicago.
B. WALKER, Clyde, Illinois.

WANTED.—To sell seed potatoes at 65 cts. per bush. Varieties, Carman No. 3, Sir Walter Raleigh, Seneca Beauty, Early Ohio, Rural No. 1 and No. 3.
A. B. BUES, 432 West Lima St., Findlay, Ohio.

WANTED.—To sell 50 stocks of Italian bees, 50 patent hives, stock of tools, implements, bee-supplies, and foot-power Barnes saw at bargains; all new. Cause, lost health and use of right hand. Write.
C. S. INGALS, Morenci, Mich.

WANTED.—An apiary to work on shares; references exchanged. Also will sell cheap in North Tennessee, one colony Root red-clover Italians, 59 supers full of sections ready for use, 5 lbs. fdn. and 500 sections.
R. S BECKTELL, New Buffalo, Mich.

WANTED.—To sell 40 colonies of Italian and hybrid bees, half in 10-frame Simplicity hives, and half in 12-frame Gallup hives, with all fixings for comb and extracted honey. Can take care of them no more.
PHILIP STEITZ, Stottville, Col. Co., N. Y.

WANTED.—An experienced bee-keeper to establish and take charge of a commercial apiary on a plantation in Mexico. When writing state terms of employment desired and send references.
W. H. VERITY, 303 Fullerton Bldg., St. Louis, Mo.

WANTED.—To purchase 200 to 400 colonies of bees in Northern California, Oregon, or Texas. State price f. o. b. car; also kind of hive, with or without supers, and condition of bees, about April 1 to 10.
DR. G. D. MITCHELL & CO., 329 Wash. Av., Ogden, Utah.

WANTED.—A reliable man competent to take charge of from 200 to 250 stands of bees that could be had at once. We would pay wages this year and might make permanent arrangements for a term of years if agreeable at the end of the season.
J. R. SLEASE, Roswell, New Mexico.

WANTED.—To sell or exchange about 55 shipping-cases for square sections, and 50 extra glasses; 500 beeway sections; a quantity of section-holders and pattern separators, all in flat. Also nailed section holders, separators, and division-boards that have been used.
F. L. WIGNALL,
Fort McKavett, Menard Co., Texas.

WANTED.—To buy 50 colonies of bees for cash; must be cheap.
F. B. CAVANAGH, Galt, Mich.

WANTED.—To sell sweet potatoes; choice seed; best varieties. Send for descriptive price list.
L. H. MAHAN, Box 143, Terre Haute, Ind.

WANTED.—Bee-keepers to send 10 cts. for sample paper bags for putting up extracted honey.
R. C. AIKIN, Loveland, Colo.

WANTED.—A young man of good habits to assist in running apiaries. State age, experience, and wages required.
F. B. CAVANAGH, Galt, Mich.

WANTED.—To sell fine Early Michigan seed potatoes at $1.00 per bushel.
JOSEPH SOWINSKY, New Era, Mich.

WANTED.—At once, 200 swarms bees. Will pay cash.
QUIRIN, THE QUEEN-BREEDER,
Parkertown, Ohio.

WANTED.—A good second-hand Barnes foot-power saw, in exchange for supplies. State condition and price.
THE A. I. ROOT CO.,
1200 Maryland Ave., S. W, Washington, D. C.

WANTED.—Man, either married or single, to work on farm by month or year. Must not use tobacco, drink or swear. Give references, state age and experience.
C. J. BALDRIDGE, Kendaia, Seneca Co , N Y.

WANTED.—To sell eggs for hatching from Black Langshans; Heetticht famous prize-winning strain. Eggs, $1.00 for 15.
R. L. CASTLEBERRY, Sherman, Kansas.

WANTED.—To exchange a genuine Stradivarius violin 150 years old, foundation-mill, bone-mill, shotgun, revolver, clothes-wringer, game roosters, and fox-hound pups.
ELIAS FOX, Hillsboro, Wis.

WANTED.—Customers to send for my booklet describing my Rhode Island Reds, Light Brahmas, and Barred Rocks; hardy, prolific, farm bred; pure stock from which I sell the eggs to hatch at 6 cts. each.
WALTER SHERMAN, 100 Boulevard, Newport, R. I.

WANTED.—Experienced bee-man to take charge and run about 300 colonies; steady place for right party. State experience, reference and wages wanted.
WALTER L. HAWLEY,
R. F. D. No. 2, Fort Collins, Colorado.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and 4¼×4¼ sections; made for Pan-American. For prices, etc., address
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell an apiary of 25 colonies of bees, in good condition; also a lot of supplies consisting of 125 hives in the flat, 50 hives made up and painted, 50 supers, 2000 sections, a foot-power saw, honey and wax extractors. Will take $80.00 for the entire outfit, worth $300; must be sold. The apiary and supplies are located at Delhi, Jersey Co., Ill. For particulars address
H. D. EDWARDS, Sapulpa, Ind. Ter.

WANTED.—To sell, on account of blindness, 100 colonies of honey-bees in lots to suit purchaser, in single or double walled hives. Or the entire plant consisting of the above bees, extractor, smoker, queen-excluder, honey-boards, bee-escapes, extracting-combs, second-hand bee-hives, etc. Apiary established 23 years. The good will and trade included. Five minutes' walk from railroad station.
CHAS. FAVILLE South Wales, N. Y.

WANTED.—You to know where you can get queens for queen mothers that will produce queens whose workers will give you a profit when other strains of Italians will fail. This strain of Italians was originated 30 years ago, and has a record of 800 lbs. of honey (single colony) in one season; 5 tons of comb honey from 33 colonies, one season.

Rose Comb Buff Leghorns (original) true Leghorn type, as good layers of large white eggs as the Whites, and 25 per cent larger, and hardier; golden beauties, superior B. P. Rocks; snow-white Wyandottes. Handsome circular to all free. Prices low.
G. BOOMHOWER, Gallupville, N. Y.

PAGE & LYON,
New London, Wisconsin.

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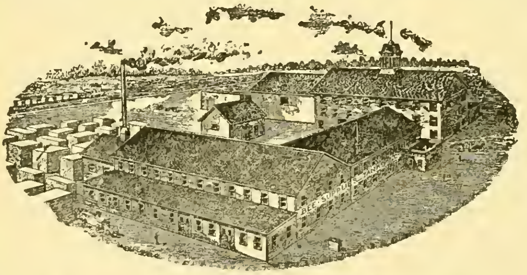

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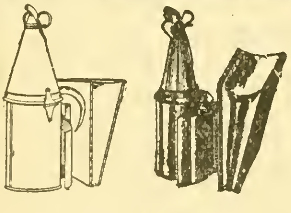
Kretchmer Mfg. Co., Box 60, Red Oak, Ia.



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Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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M. H. Hunt & Son
Bell Branch, Mich.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No I.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. I.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. I Dark," etc.

San Francisco.—Comb honey nominal. Extracted, water-white, 7; light amber, 6½; dark amber, 5. Beeswax, 28.

March 25. E. B. Schaeffle, Murphys, Cal.

Detroit.—The demand for comb honey is light, and prices have a downward tendency. Prices are as follows: Fancy comb honey, 15½@16; No. 1 dark, 12@14. Beeswax, 29@31. M. H. Hunt & Son,

April 10. Bell Branch, Mich.

Kansas City.—Our market is almost bare of comb honey, but the demand is good. We quote as follows: fancy white comb, per case of 24 sections, $3 50; No. 1, $3.40; No 2 white and amber, $3.00@$3.25. Extracted white, per lb., 6½; amber, 5½@6. Beeswax, No. 1, 25.

C. C. Clemons & Co.,

April 2. 306 Grand Ave., Kansas City, Mo.

New York.—A fair demand for comb honey in small quantities, and supply more than sufficient. We quote fancy, 13@14; No. 1, 10@13; buckwheat, 10@13; California extracted, 6¾@8½. Beeswax, 32@33.

Francis H. Leggett & Co.,

April 7. Franklin and Varick Sts., New York.

Toledo.—We beg to give the quotations as follows: Fancy white, 17@18; A No. 1, 16; no demand for amber. Extracted white clover, in barrels, 8; light amber, in barrels, 7. Beeswax, 27@29

Griggs Brothers,

April 8. 214 Jackson Ave., Toledo, Ohio.

Cincinnati.—The comb-honey market has weakened a little more, and is freely offered at the following prices: Fancy white, 14@15; no demand for amber whatever. The market for extracted has not changed, and prices are as follows: Amber, in barrels, 5¼@5½; in cans, 6@6½; white clover, 8@8½. Beeswax, 28@30.

C. H W. Weber,

April 7. 2146-8 Central Ave., Cincinnati, Ohio.

Philadelphia.—Sales have been light for the last ten days, and the warm changeable weather has decreased the demand. We quote fancy white comb 15@16; No. 1, 14. Extracted white, 7@8; amber, 6@7 Beeswax, 30, and in good demand. We are producers of honey, and do not handle on commission.

Wm. A. Selser,

April 8. 10 Vine St., Philadelphia, Pa.

New York.—Comb honey is moving rather slowly of late, and prices are declining somewhat. We quote fancy white at 14@15; No. 1 white, 13; amber, 11@12. Extracted quiet and easy, with plenty of supply. We quote white at 6½@7; light amber, 5½@6; dark, 5. Beeswax steady at 30@31.

Hildreth & Segelken,

April 8. 265-7 Greenwich St., New York City.

Buffalo.—Choice white honey is in very fair demand; lower grades moving slowly. Receipts are more liberal than was expected for this year, and this season of the year. Fancy white comb, 14½@15; A No 1, 14@14½; No. 1, 13½@14; No. 2, 12@13; No. 3, 11@12; No. 1 dark, 11@12· No. 2 dark, 10@11. Extracted white, 6@7; dark, 4½@5½. Beeswax, 28@32; scarce and wanted. W C. Townsend,

April 11. 178, 180 Perry St., Buffalo, N. Y.

Chicago.—Choice to fancy white comb honey sells in a limited way at 15@16. There is no certain price for other grades, but they sell slowly at 3 to 5 cts. less per pound. Extracted 6@7 cts. for white grades; ambers, 5½@6½. Beeswax wanted at 32.

R. A. Burnett & Co.,

April 7. 199 South Water St., Chicago, Ill.

Denver.—We quote No. 1 white comb honey, $3.00@$3.25 per case of 24 sections; No. 2, $2.50@$2.75. Extracted, choice white alfalfa, 7½@8⅓, according to quantity taken. Beeswax wanted at 22@28. Apiary products of Colorado are now protected by a special law enacted by the last general assembly, imposing heavy fines on any party found guilty of selling adulterated honey or beeswax without prominently labeling it as such.

Colorado Honey-Producers' Ass'n,

April 9. 1440 Market St., Denver, Col.

Schenectady.—But very little doing in honey, and stock well cleaned up. We are entirely out of extracted. No change in prices. We quote No. 1 white clover, 14@15; No 2, 13@14; buckwheat, 12@13. Extracted, light, 7@8; dark, 6½@7. Chas. McCulloch,

April 8. 523 State St., Schenectady, N. Y.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

For Sale.—We are sold out on alfalfa honey, but have ten 350-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls fancy basswood at 8c; 60-lb. new cans, two in a case, 9c. E. R. Pahl & Co.,

294, 296 Broadway, Milwaukee, Wis.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,

199 South Water St., Chicago, Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

Orel L. Hershiser,

301 Huntington Ave., Buffalo, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer. Seavey & Flarsheim,

1318-1324 Union Avenue, Kansas City, Mo.

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To promote and protect the interests of its members.
To prevent the adulteration of honey.

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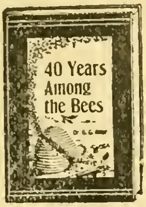

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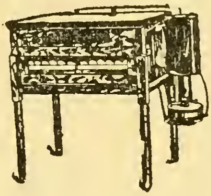

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

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Stray Straws

By Dr. C. C. Miller.

To help get wax out clean, it is advised in *Leipz. Bztg.* to stir into the melted mass some cut straw, then press.

Buckwheat, says F. Greiner, in *American Bee-keeper*, yields abundantly on the hilly portions, but very poorly on the flats.

Takes me back a quarter of a century to hear A. I. Root talking enthusiastically again about bees. Keep it up, Bro. Root; but kind o' careful like, so it'll last.

Camphor will drive ants away from hives.—*Ill. Monatsblaetter.* [Might it not also drive away the bees? What is offensive to one would be likely to be offensive to the other.—Ed.]

R. F. Holtermann says, page 285, "No starter needs to be used with" Weed foundation. What under the sun does he mean? [I give it up. This may have been a misprint that I overlooked.—Ed.]

The experience of C. F. Bender, p. 290, confirms the view that, wherever bees have an equal choice between old comb and foundation or new comb, they always prefer the old, whether for honey or brood.

Speaking of sleeping upstairs in Cuba, p. 295, it is well known in the medical fraternity that in malarial regions those sleeping downstairs may be badly shaken with the ague while those sleeping upstairs are exempt.

Sylviac, in *Le Rucher Belge*, says that from observations in different parts of France, and in Texas, he learns that during harvest there is a nightly loss of one-fourth of the daily income of a colony. [France and Texas! That is a rather queer combination for Frenchmen to talk about.—Ed.]

I've had bees crawl up my trousers leg, and it's any thing but comfortable; but, my! C. E. Woodward must have baggy trowsers to allow a parrot to climb up his trousers leg. Come to think of it, may be the parrot climbed up outside.

Friend Doolittle says, p. 278, pasture alsike till two weeks before the time you want it to bloom. Others say, mow it before blossoms are formed. I wonder which is better. I suspect the pasturing might be worked later than the mowing.

Yes, Mr. Editor, I own up that I had the wrong idea in my head when I said I didn't see how you could easily get a group of five hives into a straight row. I supposed you meant a group like the S. E. Miller group in the A B C book. I hardly suppose you would advocate having a group of five close together in a straight row.

W. Fitzky, the industrious gleaner of *Centralblatt*, mentioning Ferry's dog reported in Gleanings, says they may have not only long-tongued bees from this country, but as the latest specialty "swarm-announcing American dogs. [Our German correspondent might get prices on these dogs in dozens and hundreds lots. He evidently implies that they are quite numerous. The Root Co. will buy up 100 or so if they are obtainable. I have no doubt we could obtain a good market for animals that would watch bees and sound the alarm when they swarm.—Ed.]

R. C. Aikin has succeeded in making me swallow his "bologna sausage" and then "look pleasant," but I can't swallow (without gagging) his definition of "swarm" as merely a "congregation of bees," p. 286. Strictly speaking, I doubt there ever being any swarm without swarming, although by courtesy the term may be applied to an imitation. And I hardly see why he objects to the imitation being called "artificial," for the word "artificial" has, for its first meaning, "produced by art rather than by nature." But if he comes back at me too hard, I'm ready to crawfish; for one of the things I never expect to master is the English language.

"I second heartily A. I. Root, p. 293, in his "protest against this fashion of dropping down with a lot of hives close to a successful bee-keeper." And I suppose there was a time when protest was made against dropping down with a bunch of cattle close beside a successful cattle-raiser. But the moral protest didn't work, and the man had to get legal protection for a certain territory. I once got a hornet's nest about my ears for saying that bee-keepers needed the same protection as cattle-raisers or farmers. I was right, but there's such a thing as getting too far ahead of your times.

Against robbers, *Ungar. Biene* recommends a veil of mosquito-netting hung over the entrance. The robbers will settle on the netting, vainly trying to enter, while those inside will force their way out elsewhere. But if they're as persistent as robbers are in this locality, I'm afraid they would keep right on trying to get in. [Mosquito-netting will not work with our bees. We have tried it hundreds of times. Wet grass or weeds thrown over the entrance are about as good as any thing I know of. A little carbolic acid in the water that is used to wet down the grass will make the robbers hover around at a distance.—Ed.]

A correspondent wants a dozen improved Miller queen-cages, and asks for a price list. I've no price list, and don't sell supplies. The old-style Miller cages may be found on old supply lists, but not the improved as described on p. 246 of "Forty Years Among the Bees." Possibly others may not think these an improvement. I sent one to Editor Root two or three years ago; and as he never said any thing about it I suppose he thought the old was better. [Yes, such a cage was sent, but I did not like it as well as the old one. The latter has some features for the general trade that the new one does not possess.—Ed.]

Who would have thought of "Somnambulist" rubbing his eyes open long enough to side with the editor against me? To my suggestion of outdoor work he says in *Progressive Bee-keeper:* "Nothing like it, doctor; but the prescription is not convenient for all, and field work needs some variation about it to give the best results, otherwise the same set of muscles gets all the culture, while others, as much or more in need, languish for want of being used. The proof of the pudding is in the eating. If you doubt the exhilarating effects of physical culture, just try it once for a short time. When one is already tired out it seems unreasonable to expect additional exercise to prove restful. Such is, however, the case."

"I suppose they destroy the fertile worker at once," says B. Coman, p. 290. Some beginner, on reading that, will understand that there is only one laying worker instead of a whole lot, if not most of the bees in the colony. Better make the correction in a footnote, Mr. Editor, every time any thing of that kind is said. If you haven't room for so many footnotes, then "cut it out." [While I can readily believe there are generally more than one fertile worker, yet how do we *know* or how can we know that there is only one in all cases? Is it not probable that there is only one laying worker in a hive sometimes? If it has been definitely proven that there is more than one fertile worker in a hive in *every* instance, I have not seen the proof. On the other hand, has it not been stated that the fertile worker was caught in the act, killed, and that thereafter the promiscuous egg-laying ceased? It seems to me such evidence was presented some years ago.—Ed.]

I wonder if M. W. Murphy didn't misunderstand that nurseryman who told him that pears grafted or budded on seedlings never blight. At one time I raised seedling pears by the thousand; and when they were budded I had hundreds of them to blight. I think he will find that nearly all, and I'm not sure but all except the one original tree, of any named variety are budded or grafted on seedlings. [Our readers may not know that Dr. Miller, years ago, embarked in the fruit business quite extensively. The younger bee-keepers may be surprised to know he has a good many acres of fruit on his place. The care of it is in the hands of his hired man or a brother-in-law, while the doctor devotes himself to his bees. It is, therefore, to be presumed that the doctor, when he talks about pear-blight, is speaking from personal observation and experience; but we are glad, "allee samee," that he got switched off from the pear business to the bees.—Ed.]

A. I. Root says, p. 295, C. E. Woodward very much prefers Hoffman frames so as to have automatic spacing, while Moe, Hochstein, Howe, and perhaps all the bee-men west of Havana, will not have a Hoffman frame on the premises, and asks, "What are you going to do about it?" I'll tell you what I'd do, Bro. Root; I'd advise them to use Miller frames. Then they'd have all the advantage of automatic spacing without the intolerable nuisance of the bee-glue, which is almost certainly the reason the Hoffmans are disliked. [I do not know about Mr. Hochstein nor Mr. Moe; but Mr. Howe did not like Hoffman frames when he was working with Coggshall in New York; indeed, the latter started with unspaced frames. I always felt that if Mr. Coggshall had commenced with Hoffman frames he would have preferred them to any thing else; but it might surprise you to find how many would not like your style of frames. We tried to introduce metal-spaced frames in certain parts of Cuba, but they would not take.—Ed.]

Referring to that 75 cts. business, p. 276, you say I'm introducing a new condition. Sure; and a new frame. But the question remains a fair one: Will the shallow frame with feeding after the harvest clean up any more than H. R. Boardman will with the deeper frame and feeding the same amount before harvest? [I do not know. But how is this question, with its new conditions, related to the former question? to which I referred on page 244, Feeding *before* the honey-flow as practiced by Mr. Boardman is a very different procedure, and for a *different purpose*, from feeding *after* the honey-flow, as it is sometimes practiced by the Danzyites. In the case of the former, even if the colonies are strong they are fed to crowd the brood-nest with stores so that all new honey will go above In the case of the latter, the depth of the brood-frames takes care of the matter automatically to some extent so that, whether the apiarist is negligent or too busy, the honey when it does come in will be forced above. When syrup is given *after* the honey flow, it may be given in one large feederful at one dose, and taken down in a night. It is then designed simply to give the bees winter stores just before they go into winter quarters. There is no idea of stimulation about it. Mr. Boardman designs to *stimulate* as well as to crowd the brood-nest. If the questions are to be linked together at all, the same procedure before and after should be given to each kind of hive.—Ed.]

"HONEY may be shipped by express when the distance is short and the weight light," quoth ye editor, page 275. I used to think that, but experience taught me differently. It is true that you can send a small amount a short distance by express as cheaply as by freight, and in less time. But the cost is not the chief objection: it's the rough handling, at loading and unloading, and it will be the same for a long distance as for a short, unless there is a change of roads. Also it will be worse for a light than for a heavy weight, for express men just throw things. Experience tells me it would be risky to send 5 lbs. of comb honey 5 miles by express. [Your experience has been a good deal like that of others, and ours too—that a small shipment of comb honey sent by express is liable to be smashed or damaged. The rate from here to Cleveland is 40 cents on 100 lbs. Suppose I wish to send 200 lbs. of honey, it costs only 80 cts; then if it were crated, the handles sticking out at each end, the honey *should* be (but it is not always) carried without breaking. A light fragile package weighing 10 or 15 lbs., that can be thrown like a brick, is liable to be damaged. It often happens that for a short distance 200 or 300 lbs. can be sent cheaper than by freight. When it is sent by express it is *delivered to the consignee*. When sent by freight there is a cartage item of at least 50 cts., to say nothing of the delay and the freight itself. For a distance of 25 to 50 miles, the express will often be cheaper than freight. Let us take an example: The freight and cartage on 100 lbs. of comb honey to Cleveland would be 75 cts. The express on this same weight (including cartage) would be only 40 cts., and the goods would be delivered in three or four hours. On 200 lbs. to the same point the cost would be slightly in favor of freight, or 75 cts. as against 80 cts. by express. On 300 lbs. the ratio would be 86 cts. and $1.20 respectively. But having said all this, I suspect the average shipment of less than 200 lbs. had better go by freight; for, as you say, comb honey by express is quite liable to be broken because the goods are shoved in and out of the express cars in a hurry, slam-bang ker-bump ker-smash fashion. The messengers and agents have to hustle, for the conductor stands with hand raised, ready to give the signal for the starting of the train.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

Darkened days—drizzle, rain,
  Fog, and steamy air;
Muddy roads, no glimpse of sun—
  April everywhere.

* * *

AMERICAN BEE JOURNAL.

Concerning honey as a staple article of food, Mr. Hasty well says:

> Oranges and lemons are luxuries, but somehow the people will have them. Honey is a luxury, and most people consent to go without very easily, if the article is not handy This queer and ugly fact should be figured on in deciding as to the possibility of a Honey Exchange. Also, this related fact that higher prices are not nearly so much needed as the cultivation of the market clear from the bottom. Doubt whether the proposed Exchange will cultivate or do the opposite thing. A stream is not expected to rise higher than its fountain; and an organization formed of those who extract their honey before it is really ripe will hardly refuse to handle unripe honey.

* * *

If there is any one thing that ought to be proclaimed on the housetop it is the following, from J. M. Young:

> Every bee-keeper should have a small stamp, then stamp all his stationery and every thing he sends out by mail. On every bit of matter sent through the mail, put your name and address, for it will save your customers, and people who do business with you, a world of trouble. Again, it prevents mistakes in many instances. I put my name and address on every section I use on the hives, or that the honey is built in, and I also use it on every box I send out by express or freight. The latter stamp, of course, must be a larger one, for shipping by freight or express.

As stamps are so cheap now, there is no reason for any man, who writes letters, to go without one of these conveniences. Many who write for the press sign their names in such a way as to be entirely illegible, and their address the same often omitting one or the other, which they would not have done if a stamp had been handy. "G. C. Greiner, Producer of Pure Honey, La Salle, N. Y.," has our thanks for stamping every sheet he sends us. Of course, a typewriter answers the same end.

* * *

Should the name of the producer of a given quantity of honey be retained on the package till said honey reaches the consumer? This question is now being discussed with more vigor than usual. Mr. Alma Olson takes the position that his name should be allowed to stand on his honey packages, and says:

> If the dealer were to erase my name and substitute his own he would be robbing me of my just dues; and if that is not illegal it ought to be punishable. But there is an unwritten law governing these things. I am not in the mood, neither do I have the inclination, to make a reputation for Mr. A's or Mr. B's honey; neither do I care to build up the reputation of all the honey produced in Idaho by painstaking care. And there is a natural law of compensation which rewards each individual for his greater efforts.

Mr. York replies:

> We never say on our labels that *we* are *the producers* of the honey we sell. We have spent hundreds of dollars in creating a demand for "York's Honey," and not for Olson's or that produced by Jones. Their whole crops would be but as a "drop in the bucket" compared to what we sell during a season. We stand back of all the honey that goes out as "York's Honey," and know nothing of Olson's or Nelson's or Miller's honey, and care nothing about their honey. We are not working to sell their honey, unless we buy it, when it becomes "York's Honey," like any other good honey we buy. After it passes out of their hands they have nothing further to do with it, having received their pay for it. When you sell your wheat or oats to a dealer do you insist on having your name on the bags holding the wheat or oats? Well, hardly!

It "hardly" seems to me that Mr. York's reasoning is correct. Suppose all wheat is sold in bags, and that there is a great demand for the Olson wheat. He says that none is to be regarded as genuine unless sold in bags labeled with his card. If the York brand sells for 10 cents a bushel more than the Olson, would it be fair to say Olson wheat is York wheat simply because Mr. York bought it? Doesn't the name before the article mean the producer rather than the handler? In the long run it probably makes but little difference, however, as the consumer knows but little about the producer except in rare instances.

However, this argument all depends on whether comb or extracted honey is meant. If Mr. York has a uniform brand of blended extracted honeys, he has a perfect right to sell it as such; and then, of course, the identity of each separate brand would be lost, label and all. But if a certain brand is in great demand in Chicago, the producer would probably not find it necessary to send it there, as he could sell it at home, where he is known.

Just as the above was written, the foreman asked me where to put the following. As it comes in so pat here, I am glad to make room for it:

> I hand you herewith the following resolution:
>
> "*Resolved*, That this, the New York State Association of Bee-keepers' Societies, in convention assembled at Syracuse, March 10, 1903, recommend and urge the bee-keepers to place their name and address upon the packages containing their honey, both comb and extracted, and that this resolution be forwarded to the bee journals for publication."
>
> Romulus, N. Y. C. B. Howard, Sec.

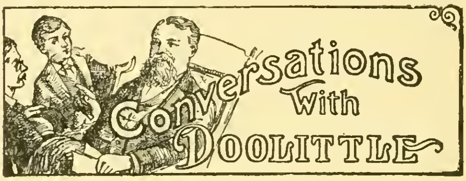
ROCKY MOUNTAIN BEE JOURNAL.

The above has just closed its third year. Unlike some of the newer publications it gives evidence of stability and usefulness. Indeed, it has already proven a power for good in Colorado. It well deserves every success.

* * *

The Colorado Experiment Station, as we have already announced, has decided that the best time to cut alfalfa is at the period of full bloom. In commenting on this, Editor Morehouse says:

> If this view of the matter is accepted by our farmers, there need be no fear that the bee industry will ever become extinct in Colorado, through the tendency to cut alfalfa before it blooms. In fact, extreme early cutting is not practiced to such an extent as some would have us believe; and with such good wholesome advice as the above from our agricultural-college professors, we expect to see it lessened in the future.



Conversations With Doolittle

"Well, Doolittle, how are you this morning?"

"Rather better of my rheumatism than I have been for a week back. How is Mr. Smith?"

"I am pretty well to-day, thank you. I want you to tell me something about increasing bees. Will you do it?"

"What! you got bees?"

"Yes. I have purchased five colonies, and wish to increase them to ten or more. Is there any way of multiplying colonies, except by swarming, as the bees conduct this, for increase?"

"Why do you wish any other way than natural swarming? The bees know how to increase themselves rather better than any beginner can do it, if not better than is in the power of the veteran."

"I must be from home from half-past seven to half-past five each day, except Sundays; and if there is any way to multiply my colonies other than by natural swarming it would be much more convenient for me. Please tell me something about this matter."

"I think I can give you no better advice than to purchase some good book on apiculture before undertaking artificial increase; for in most of them the subject is discussed quite extensively, and to greater extent than would come in the space allotted to this department."

"I will do this; but can you not at this time give me in brief some of the principles governing artificial or forced increase of colonies?"

"Artificial swarming is based on the following facts: First, a queen and some workers, a thousand or more, constitute a swarm or colony of bees, capable of carrying on all the labors of the hive."

"But, aren't drones necessary as well?"

"Necessity for drones comes only in case of young unfertile queens. The second fact is, that worker bees, without a queen, can rear queen if they are furnished with a comb containing eggs or larvæ under three days old. Third, a part of the bees of any colony, unless too small, may be taken from the hive or colony, with or without the queen, without disorganizing any of the others."

"Don't you take a part of the combs from the old colony in making new swarms?"

"You can, or you need not, just as suits you best; and this brings me to the fourth fact, which is, that a part or all of the combs may be taken, with their contents, from a colony of bees without destroying them, as they will immediately go to work to replace it, if fed, when honey is not coming in from the fields. Then fifth, and lastly, queens can be reared in any desirable number by taking the queen away from any populous colony, according to the number; and, when nearly mature, they can be given to the queenless part of any division made. These facts, while they form the basis for artificial swarming, are subject to many qualifying conditions, and a mere knowledge of them alone would not enable a novice to multiply his colonies to the best advantage."

"How, then, am I to know how to increase my colonies to the best advantage?"

"By getting some book; or, if you can afford it, all of the books on apiculture, and studying them, and. through the knowledge thus gained, and thorough knowledge of the economy of the hive, and the habits and peculiarities of the inmates thereof, coupled with what I have just told you about the five facts, will, with a person of ordinary ability, give success in proportion to the energy and perseverance of the one undertaking the matter."

"Do you think I could succeed?"

"I do not know why you should not, for I judge you have the qualities named; but you will want to go a little slow at first. The greatest and most damaging error that nearly all beginners fall into is an inclination to overdo the matter. After getting started they generally 'swarm' their bees to death, as the multiplying seems so easy during the honey-flow, and they find themselves in possession of a lot of weak colonies, with little stores for winter, when that season arrives, only to drag out a miserable existence for a little while, or die of spring dwindling before settled warm weather arrives. Another error, in the average locality, is almost as bad as the above, which is, putting off the increase of colonies till too late in the season."

"When is the right time to multiply my colonies?"

"No definite time can be given, as very much depends on the season and locality; but it is well to do it as early as you can. In the Northern States it can generally be done with safety from the 10th to the 25th of June, and in the Southern States from one to two months earlier, according to the latitude."

"How can I tell about this matter? Is there nothing definite to go by?"

"The only safe guide is the condition of the colonies to be operated on. The hives should be well filled with brood and bees, and honey coming in from the fields, to have the proper conditions exist. This will often occur from one to three weeks before natural swarming would take place?"

"Why begin so early?"

"Because the majority of us wish to secure as much surplus honey as possible along with the increase. In this way the parent colony, as also a swarm made at that time, will, by the time when honey becomes abundant, be filled with comb and brood, and ready to take advantage of the honey harvest by storing a nice surplus; while, if left till later, each part would have all this work to do at the most important period of the year. Two or three weeks thus saved, frequently amounts to the difference between an excellent yield of honey and not enough to pay expenses."

"Can I make all increase at the same time?"

"This is not usually the case, as many colonies will not come into proper condition for dividing when the more advanced are 'ripe' for the operation, on account of all not coming through the winter in equally good condition, having old or failing queens, etc."

"What shall I do with any weak colonies I may chance to have?"

"Such colonies may be united with others, after destroying old queens; or, if the queen is vigorous, a frame of emerging brood may be given from one of the most prosperous colonies, as soon as the weather becomes warm enough so there is no danger of the brood perishing on account of too few bees to care for it properly."

"How large an increase would you think best to make?"

"That depends on your wants. Having the colonies in proper condition, it is well to decide whether a great increase of bees is desired or a good crop of honey. Both can not well be secured at the same time. If we are satisfied with doubling our colonies, and do that in time, a fairly good yield of honey can be expected in most localities; but a greater increase can not be ventured upon without a great sacrifice of honey, often to the exclusion of the whole crop."

"I thank you very much for the information given, and with the help of some bee-book which I may get I think I shall succeed very well. What would you think of my purchasing the A B C of Bee Culture as that book?"

"It is a good one. In fact, it is the only bee-book that is kept up to date at all times. You will certainly make no mistake in purchasing it now; then when you can do so, get others, which will tend to broaden your mind still further."

Editorial
By E.R. Root.

One who reads the *American Bee-keeper* from time to time can not help feeling impressed with the fact that its editor, Mr. Hill, is a practical bee-keeper himself. He is an adept in swinging the queen's English. I envy him his talent.

HO FOR CALIFORNIA!

I have been informed that the next meeting of the National Bee-keepers' Association will be held in Los Angeles. The National will follow its old custom by following the G. A. R. Low rates have been promised, and the Californians will be able to entertain right royally. Further particulars will be given later.

ENCOURAGING FOR CALIFORNIA.

Prospects for a honey crop this season in California seem just now to be exceptionally good—just the year for holding the next National convention at Los Angeles. Mr. Hubbard writes:

> *Dear Sir:*—We have been having some splendid March rains, and I consider the prospects for honey as bright as the year 1894, which was the best I have experienced in ten years. It is the late rains that count for a honey harvest; and so much of this season's rainfall has been at the best possible time for honey-plants. Orange-blossoms are now beginning to come, and the rains will insure a good flow from the hills, mountains, and plains after they drop.
>
> Riverside, Cal., March 31. G. K. Hubbard.

S. L. WATKINS, AGAIN.

In our issue for March 1, we stated that Mr. S. L. Watkins, of Grizzly Flats, Cal., had been obtaining queens from several of the best breeders, ordering them in half-dozen and dozen lots, without paying for them; that his promises were always good, but that the fulfillment of them was very bad. It seems that Mr. Gilstrap, of California, and Mr. Laws, of Texas, were unfortunate enough to lose through him. The following, from another queen-breeder, Mr. F. A. Lockhart, is another case in point, and speaks for itself:

> We noticed your editorial about Mr. S. L. Watkins, Grizzly Flats, Col , not paying for queens ordered of queen breeders in different parts of the country, etc. We would add that, during 1901, we sent him ten queens. He made all kinds of good promises, but as yet has failed to keep them. For the past six months he has made no reply to letters.
>
> Caldwell, N. Y. F. A. Lockhart & Co.

If Mr. Watkins deliberately intends to get something for nothing, the queen-breeders of the country should be warned. If he is really unfortunate, and really can not pay for the queens, then he should make a statement, which statement we will gladly place before our readers; but in either case he has no business to order queens when he is owing for stock already purchased.

A TEASPOONFUL OF HOT PARAFFINE FOR SHIPPING-CASES, VS. A PAPER TRAY.

On page 159 Dr. W. O. Eastwood, of Whitby, Ontario, Canada, suggested pouring a little stream of hot paraffine (only a teaspoonful) in one corner of a shipping-case, then tilting the case around in such a way that the paraffine would flow along the line of the crack formed by the bottom and the sides and ends of the case. This will be all right if the bottom is of one piece, and even then the dividing crack can be closed in the manner stated, with a little more paraffine. In my footnote I rather discouraged the plan, but the more I have thought the matter over, the more I have concluded it may be practical after all. Dr. Eastwood pronounces it good; and undoubtedly it is good if the manufacturers of bee-supplies would make their shipping-cases perfectly tight, or so they can be made tight when put together.

LIPPIA, OR BERMUDA GRASS—WHICH?

Referring to the new honey-plant mentioned in our issue for March 15, Mr. E. J. Wickson, of *Pacific Rural Press*, writes:

> *Mr. Root:*—I apprehend that, in your article on carpet grass, on page 228, March 15, you have confused Bermuda grass with *Lippia*. Your description of what you encountered at Nicolaus fits Bermuda grass exactly, but I apprehend that nobody would have such feelings upon lying down upon a growth of *Lippia*, for that is not grasslike at all, but more like a small-leaved prostrate shrub with small woody stems. *Lippia* may be a good honey-plant, but I have never heard it mentioned in that connection. E. J. Wickson.
>
> San Francisco, Cal., March 25.

Mr. Wickson is probably in position to know that there is possibly and probably a a confusion in names. I am sure of this: That the carpet grass that I referred to is very springy and spongy under foot. I should be glad to have Mr. J. H. Erich, of Nicolaus, Cal., where I saw the plant, send a sample of the grass or leaves to Mr. Wickson for identification. It would be a joke if we have been talking about two different things.

FOUL BROOD IN THE HUMAN MOUTH (?).

I learn through the *American Bee-keeper* that I am credited with saying that the germs of foul brood exist in the human mouth. This interesting piece of "news" comes clear from Ireland. What I did say once was that, in my younger days, when I was studying with the microscope, I used to examine some forms of bacteria as found in the human mouth. "Bacteria" is a general term for microscopic life, some of which is of a disease-breeding character; and the editor of the *Irish Bee Journal* apparently makes me coincide with the notion that foul brood exists in the human mouth, because, forsooth, *Bacillus alvei*, the microbe of foul brood, is one of the bacteria. I found bacteria in my mouth, *ergo* my mouth contained foul-brood germs. The logic is a little strained. I have never held the opinion that the disease with which we are familiar, and which has made such havoc among our bees, ever resides in any thing but the larval growth of insects. Indeed, it is probably confined to the larvæ of bees exclusively.

TESTING BARRELS AND CANS FOR LEAKS.

EDITOR HILL, of the *American Bee-keeper*, referring to what was recently given in GLEANINGS for testing honey-barrels by blowing air into them, says it is "very unreliable." And then he goes on to say:

> A decidedly better way is to place the lips firmly in or against the aperture, draw into the lungs and exhale through the nose all the air possible, by repeated draughts, which necessarily become shorter as the air is pumped out of a tight receptacle. By this means much more power, with less effort, is exerted; and in case of a leak, in testing cans, the inrushing air from outside, while the breath is momentarily held to listen, will reinflate the partly collapsed tin, thereby keeping up a constant crackle and ring as the sides readjust themselves to the original position. In testing barrels, when a leak occurs, and while the bung is yet stopped by the human pump, the hissing of rushing air may be audible; or if the leak be very small, the suction at bung will be gradually reduced, and readily recognized by the pumper.

But Mr. France (and I regard him as one of the most careful and conservative bee-keepers I know of) illustrated at the convention how reliable the pressure plan was with him. He explained that, when a barrel is pumped full of air, the hand should be dipped in water or moistened with saliva, and be held over the hissing place. Bubbles will form at the point of the leak, and all that will be found necessary will be to drive a hoop down at that point until the hissing ceases. But when the process is reversed I can hardly see how the leak could be located so readily. I'll have Bro. Hill show me the trick when I go to Florida.

STOPPING THE MIXING OF SWARMS WITH A BLANKET OR SHEET

AS the swarming season will soon be on in many localities, I hasten to place the letter of G. C. Greiner, on this subject, before our readers. It appears that the plan of stopping the swarms as advocated by Mr. McEvoy, in our last issue, page 280, is a new old kink. Mr. Greiner writes:

> The reported scheme of retaining or confining an outcoming swarm by means of sheet or blanket is another case of a long-known little kink that is new to many, even to some of the bee-keeping veterans.
>
> More than twenty years ago we used to run to the house after sheets for that purpose, and last summer I stopped a number of swarms in this way. Some times the plan works like a charm; at other times it doesn't. Your supposition of bees boiling out from under the sheet is quite correct. In spite of all tucking up and stopping every little opening visible I have failed many times to stop them. They would come out and find an outlet somewhere, even if they had to crawl through the grass. The trouble is, we are not always ready with the sheet just in time, when they first begin to issue; and it takes but a very few minutes for quite a large portion of the swarm to be in the air. Then if the queen is with them, which she is apt to be, all the sheets of the household will be of no use.
>
> But there is another case, when a sheet will do good service. It sometimes happens that a swarm, instead of alighting somewhere else, takes a notion to enter the hive of another colony, which may mean its own annihilation. A sheet thrown over such a hive will prevent the calamity, and induce the swarm to alight where it is more desirable. G. C. GREINER.
>
> La Salle, N. Y. Apr. 4.

When several swarms are coming out at once, the bee-keeper is put to his wits' end, and will be glad to grasp at a straw; and even if the blanket or sheet plan does not hold the bees in, it may succeed to such an extent as to save him a great deal of annoyance.

PROFITS IN THE HONEY BUSINESS.

ONE of our subscribers would like to know something about the profits of bee-keeping on a moderate scale. He has just been investing in the business, and wishes to know what he may reasonably expect. The question is a hard one to answer, as so much depends on the locality and the man, and the number of bees to the area.

On the average, perhaps, in the Northern States, in what is known as the rain-belt, one might expect to get anywhere from 25 to 50 lbs. of comb honey, and perhaps from 25 to 50 per cent more of extracted. There will be some seasons when he might secure as much as 100 lbs. on an average, and occasional seasons when there would be neither comb nor extracted, and the bees would require to be fed. Taking one year with another, a small bee-keeper ought to average about 35 lbs. of comb honey, on a conservative estimate, providing he has reasonable skill and love for the business. The comb honey might net him, deducting the expense of selling, from 8 to 12 cents; the extracted, from 4 to 7. These figures do not include the labor of producing the honey nor the cost of the fixtures. The cost of the supplies, exclusive of sections and foundation, ought to be sufficient to cover 10 to 20 years if no increase is made. Suppose we put the comb honey at 25 lbs. as the average, and the price secured 10 cents net. The actual money he would get from the commission merchant or grocer might be about $2.50; but out of this he must deduct a certain amount for labor, and 10 per cent on the cost of supplies, to be on the safe side.

With only a few bees the labor would count for nothing, as the work would be performed by some member of the family or by the man of the house, who could, during his spare hours, do a little with bees and work in his garden. In case of one two, or three hundred the labor item must be figured. The larger the number crowding the available territory the smaller the profit per hive. In other words, a small apiary will always yield larger returns proportionally than the large one. I would not care to go into all the details, as there are so many diverse conditions that might arise that some one might be apt to take my figures and say that they do not fit his locality; but a rough estimate for an apiary and in a locality not overstocked, not including the labor on the $2.50 actually received for honey sold, ought to leave a net profit somewhere about $2.00. This would be on the basis that the locality did not require much feeding in the fall. If feeding was found to be necessary, 50 cents more would have to be deducted, making a net profit of $1.50. On this basis it will be seen that the profit in one season ought to pay for the hives and supers, in one year, or come very close to it, leaving the investment good for ten or more years. If we figure it that way the ten per cent need not be figured in. For a professional man, or one who has other business, even these returns are not bad. Even if he secured only enough for family use, the diversion or change to relieve the tired brain is worth something.

FORMALDEHYDE FOR CURING BLACK BROOD, AS TESTED BY THE INSPECTORS FOR NEW YORK.

Most of our readers know that New York has an excellent foul-brood law, the State being divided up into four districts, one inspector for each district. Charles Stewart, one of the number, seeing what Mr. Weber had to say regarding formaldehyde as a cure for foul brood, in our issue for March 15th, page 228, writes as follows:

> I read C. H. W. Weber's report on the use of formaldehyde for the cure of foul brood, with much interest, especially as the bee-inspectors of this State have been experimenting with this powerful disinfectant during the past summer whenever a little time could be spared from State work, in order to determine if it would cure black brood, which, you know, is much more to be dreaded than foul brood.
>
> About thirty tests were made by myself and other careful bee-keepers by treating diseased colonies on the shake-off plan, then using about three tablespoonfuls of formaldehyde to the number of combs we could pack in about 4½ cubic feet of space.
>
> These combs were then given to healthy colonies, and, with an occasional exception which could usually be traced to some outside source of infection, the brood was healthy, the combs being capped regularly over the brood. Some of these combs, before being given to the bees, were the worst cases of black brood we could find, but were, of course, first treated with vapor of formaldehyde.
>
> Later in the season, about twenty colonies of healthy bees were given combs very heavy with honey and pollen, taken from diseased colonies, and vaporized. These colonies were carefully marked, and before long we shall know if we were successsul in killing all the germs when they were located under both pollen and honey It seems almost too good to be true; but, even if it is a failure in this experiment, we expect to give them a longer and stronger dose and try it again.
>
> At first we bought a small vaporizer of A. B. Huested & Co., of Albany, N. Y ; but, later, wishing to do business on a larger scale we made a larger one ourselves, and bought a gallon of formaldehyde from the above firm, for $3.00.
>
> As a precautionary measure we expect to vaporize all of our extracting-combs this season before giving them to the bees, and feel confident that, in this kind of combs, where but little honey remained from last season, no germs will survive the treatment.
>
> Sammonsville, N. Y. CHAS. STEWART,
> New York State Bee-inspector, Third Division.

This is indeed encouraging. As Mr. Stewart well says, black brood is more difficult to eradicate than foul brood. We have now reports from three different sources, of careful experiments, going to show that formaldehyde may prove effective for curing foul brood without destroying either the combs or the brood that still remains healthy.

The method that requires the burning of the combs, and substituting one or more sheets of foundation, is necessarily somewhat expensive; but hitherto it has proven to be the only reliable method for curing either black or foul brood; but the gas or vapor from formaldehyde may be so penetrating and powerful that it enters clear into the combs, killing even the spores; and when we remember that the spores themselves have been exposed to a boiling temperature, in some cases for an hour, with out killing them, the gas must be powerful indeed. I can not help feeling some doubt as to whether *any gas or chemical*, unless so powerfully corrosive as to destroy even the brood, would fail of killing the *spores*. And this leads me to say that so good an authority as Inspector McEvoy, of Ontario, is doubtful about the efficacy of formaldehyde. He even goes so far as to say it does not cure. Let us stand open to conviction, however; for *if* the new germicide will do half what has been claimed for it, it will prove to be a great boon for bee-keepers.

No specific instructions are yet given, just how to apply the spray; but I assume the drug is bought in the liquid form, and that the same is sprayed on combs with any of the atomizers sold by the ordinary drug-houses. Of course, the foul-brood or black-brood inspector would require something a little larger, capable of covering several combs at once, or so powerful as to force the vapor clear up through all the combs while they are in the hive.

I hope that those of our friends who have black brood or foul brood in their apiaries will make tests of the drug, and report to us as soon as they can definitely determine what it will do. It is not sufficient to have the combs remain healthy for 30 days. All *bacilli*, the active principle of the disease, are undoubtedly killed by the drug; but the question will be whether spores that are capable of resisting a boiling temperature for so long a time would be destroyed by such drugs. If these spores subsequently find lodgment in the tissue of the young larvæ, there is a strong probability that black or foul brood will develop, as the case may be.

THE CANDYING OF HONEY; SOME THINGS WE KNOW AND DON'T KNOW ABOUT IT.

It is generally conceded that honey left in the comb does not candy nearly as readily as that which has been thrown out from the extractor. There is something about the agitation—the coming in contact with a large quantity of air—that causes honey to go into a semi-solid state. It is a well-known fact that honey extracted and fed back, or fed for the purpose of filling out our unfinished sections, has a tendency to granulate more quickly than comb honey which has been filled and completed wholly from the product direct from the fields. Sometimes it is urged as an objection that feeding back is unprofitable because so much comb honey would come back on the producer's hands as so much "sugared comb honey."

A case recently came under my notice that has seemed interesting in connection with the statement already made. A large shipment of Cuban comb honey went to New York. It was beautiful. It was well flavored, well filled out, white, and the buyer had every reason to suppose it would be a good seller, because it arrived just when the market was a little bare of domestic comb honey. But a few weeks later he was chagrined to find this honey was candying, and he came to the conclusion that *all* Cuban comb honey would candy in like manner. As he was a large buyer, and had promised to take a large amount of such goods, he wrote back to his Cuban customers to "hold off." An investigation revealed the fact that the first lot of Cuban honey that had been received was largely fed-back, and, like all such honey, it should be sold to the consumer at once. Subsequent shipments of comb honey from Cuba, I understand, to this same buyer, have been all right. The Cuban bee-keepers had learned in the meantime it would not pay to feed back to fill out their sections, and accordingly they shipped only that which had been filled from the product direct from the fields.

Quite a number of other facts of like nature have come before us at different times; and while one can at times feed extracted honey to finish out some of his unfinished comb honey, he must make arrangements to have this honey turned over to the consumer as soon as possible. Feeding back does not hurt the flavor in the least; and it is only after the lapse of time that its selling quality is affected, and that almost wholly through the tendency of extracted honey to "leaven the whole mass."

Two or three years ago, when I attended the Colorado State Bee-keepers' Association convention, Prof. W. P. Headden, of the Agricultural College and Experiment Station at Fort Collins, Col., gave an interesting address on candied honey. Among other things, he stated that *agitation* caused honey to candy more quickly than it otherwise would. If I remember correctly, he gave it as his opinion that the reason *comb* honey did not granulate as quickly as extracted was because the latter was subjected to the extracting process—a violent throwing and splashing causing it to come in contact with a great amount of air. There were two or three at the convention who testified that, in order to hasten granulation, they had actually been stirring the honey in addition to putting it in a cool place.

It is another well-known fact that maple-sugar syrup may be brought to a granulated condition much more rapidly if it be stirred during cooling than if it is allowed to stand in a quiet condition. Whether there is any chemical or mechanical relation between the honey and syrup I can not say.

Another fact is that honey subjected to a temperature of 160 or 180 degrees Fahrenheit will remain liquid for perhaps a year or more if it be sealed while hot. What does the heat have to do with it chemically?

Another interesting and well-known fact in connection with this matter is a little peculiar. Here are the sage and alfalfa honey that are produced in the same climate, and within a few miles of each other, or perhaps within a mile itself. One will candy very readily, and the other will remain liquid without any particular treatment for nearly a year or more, in spite of its previous agitation in the process of extracting. What the chemical difference is between the two honeys that should cause this tendency in one to solidify, no scientist has so far ever pointed out.

It is still another well-known fact that extracted alfalfa honey will candy more quickly than perhaps any other honey known. Mr. R. C. Aikin, as our readers may remember, takes advantage of this fact when he allows it to run into paper bags to solidify.

There is a great deal that we do not know about this subject. What we do know can be comprised in a few hundred words. What we do *not* know might fill a large volume. I wish that we might in some way stimulate an inquiry that will lead to a more exact and scientific knowledge whereby we can *hasten* it in one case, or *retard* it in another, just as conditions warrant. I should be glad to hear from any of our subscribers who are in possession of facts that will lead to further light.

GENERAL
CORRESPONDENCE.

GOVERNMENT AID FOR BEE-KEEPERS.

Comments on Mr. W. K. Morrison's Article; Apis Dorsata and Other Races of Bees Considered.

BY FRANK BENTON,
United States Department of Agriculture.

The general tendency of the suggestions under the above heading in the article by Mr. W. K. Morrison, p. 96, Feb. 1, is certainly good; for any discussion of the subject which calls attention to the various lines of work that might be carried out through governmental aid, and which might result beneficially to the bee-keeping industry in general, and add to the prosperity of the country by increasing the revenues from this branch of agriculture, is commendable.

Some things, however, are brought forward in the article in question as though they were there presented for the first time; whereas in every instance the suggestions are such as I have repeatedly recommended, both in addresses before bee-keepers' associations, in various articles which have appeared in the apiarian publications, and in suggestions which I have annually made in the reports which have gone from the Division of Entomology to the head of the Department of Agriculture, and on which were based the recommendations made by the Department to the Committees on Agriculture in Congress. There are certain points mentioned by Mr. Morrison to which I wish to call attention, as I think they need some further elucidation. He says, regarding *Apis dorsata*, the giant bee of India:

"I believe *Apis dorsata* would be a valuable acquisition; but as it has never been domesticated, and we are practically without information as to its habits, it seems doubtful whether we should ask for government aid for such a scheme. It seems to me it would require the attention of experimenters for several years before any thing tangible would result."

I judge that, when Mr. Morrison wrote this, he had forgotten having written in 1896 (see Gleanings, p. 561, Aug. 1, 1896), the following:

"Dr. Alfred Russell Wallace, the friend and co-worker of Darwin, is still alive, and takes great interest in bee-keeping, and is as well posted as most bee-keepers in regard to practical bee-keeping. He is the man who has told us the most about *Apis dorsata*. In fact, we could hardly ask for more than he has told us from time to time."

Let us get from Wallace himself a hint as to what he may know of practical bee management, and also see what he has told us of *Apis dorsata*.

Having here before me a copy of Wallace's work, "The Malay Archipelago," I quote a paragraph from his description of the manner in which a native of the island of Timor secures the wax and honey from *Apis dorsata*. The man had ascended a tree, his face, arms, and legs perfectly bare. "He lay at full length on the limb, and brushed off the remaining bees with his hand, and then, drawing his knife, cut off the comb at one slice close to the tree, and, attaching a thin cord to it, let it down to his companions below. He was all this time enveloped in a crowd of angry bees; and how he bore their stings so coolly, and went on with his work at that giddy height so deliberately, was more than I could understand. The bees were evidently not stupefied by the smoke nor driven far away by it; and it was impossible that the small stream from the torch could protect his whole body when at work. There were three other combs on the same tree, and all were successively taken, and furnished the whole party with a luscious feast of honey and young bees, as well as a valuable lot of wax. After two of the combs had been let down, the bees became rather numerous below, flying about wildly and stinging viciously. Several got about me, and I was soon stung and had to run away, beating them off with my net, and capturing them for specimens. Several of them followed me for at least half a mile, getting into my hair and persecuting me most tenaciously, so that I was more astonished than ever at the immunity of the natives. I am inclined to think that slow and deliberate motion, and no attempt at escape, are perhaps the best safeguards."

Those familiar with bee manipulation scarcely need to read any comments on this, since they will at once see how little knowledge of practical bee manipulation Mr. Wallace possessed at the time he wrote the paragraph.

What Dr. Alfred Russell Wallace told of *Apis dorsata* was that: "It builds huge honey-combs, suspended in the open air from the under side of the lofty branches of the highest trees. These are of a semicircular form, and often three or four feet in diameter." This is all the information in his work of 650 pages on his travels in the East. Doubtless in communications to the Entomological Society of London, and possibly in periodicals, he may have given some further account of these bees. but nothing from the bee-keeper's standpoint.

In my own published articles I have been able to state positively the size, appearance, and something of the qualities of the workers, drones, and queens of this species. I was able to determine that the tongues of the workers of this species are appreciably longer than those of our own honey-bees; also that the combs were not merely three or four feet in diameter, but often reach a length of five feet, and sometimes even six feet; that they are composed of hexagonal cells, twenty to the square inch, the brood-comb being 1½ inches thick, and the upper portion of the comb where honey is stored often six to eight inches in thickness; that no distinctive drone comb is built, but drones are reared in the same-sized cells as the workers; further, that multiple combs are sometimes built; that is, two or three combs side by side, where the attachment permits, contrary to the statements frequently seen in print to the effect that *Apis dorsata* is strictly a uni-comb bee. As to their habits, I have been able to state that they are most industrious workers, good honey and wax producers; that they fly with great strength of wing; and that the drones fly in great numbers just at nightfall, even after the flights of the workers have ceased for the day; further, that the sting of *Apis dorsata* is not more painful than that of our honey-bees, nor is the bee any more inclined to sting when brought into frame hives, and that it seems to be quite amenable to the use of smoke. Moreover, the colonies which I placed in frame hives did not desert their combs in the frame hives except under conditions which would have caused any bees to do the same thing—conditions beyond my control, and largely brought about through enforced neglect of the colonies, occasioned by protracted illness.

I was able to determine that the workers of *Apis dorsata* are very tenacious of life; in fact, possess remarkable vitality. The bees are often found at altitudes of 4000 or 5000 feet, where forests occur, yet seem to withstand this temperature successfully. They are rarely seen in the lower or coast regions. This indicates a certain degree of hardiness.

I should like to call Mr. Morrison's attention also to an article entitled "Apis Dorsata, the Giant Bees of India," published in the *American Bee-keeper* for 1895, pages 81—84.

Mr. Morrison says further (p. 96, GLEANINGS, Feb. 1, 1903): "But why not broaden the subject? Why stick to one bee? *Apis Indica* we *know* can be domesticated, and is not likely to be a nuisance to civilization." One might suppose from his manner of putting this that the idea was original with Mr. Morrison. I wonder if he ever read the following, which may be found in an article over my name in GLEANINGS for June 15, 1892, page 450:

"We may hope to bring to this country *Apis Indica*, a bee smaller than our ordinary honey-bee, but an industrious gatherer, which in quite limited numbers is kept in hives by the natives of India. It might be found that *Apis Indica* would visit only smaller flowers than our bees, and thus, even if kept in the same field, not lessen the yield we obtain from the races already here. It would be no small gain for the apicultural interests of the country if three apiaries could be kept at one point without material interference with one another."

And, again, on p. 12 of my "Manual of Apiculture" (Bulletin No. 1, new series, Division of Entomology, U. S. Dept. of Agriculture), the first and second editions of which were issued in 1891 and the third in 1899, I said of *Apis Indica:* "The common bee of southern Asia is kept in very limited numbers, and with a small degree of profit, in earthen jars and sections of hollow trees in portions of the British and Dutch East Indies. . . . Some 10 or 12 lbs. is the most reported from a single hive. It is quite probable that, if imported into this country, it would do more. These bees would no doubt visit many small flowers not frequented by the hive bees we now have, and whose nectar is, therefore, wasted."

From the above it is evident that we do not need, as Mr. Morrison would have bee-keepers believe, "to domesticate *Apis Indica*," since it is already cultivated in various parts of India, and, as a matter of fact, in the Dutch East Indies as well.

In referring to regions from which valuable bees may possibly be obtained, Mr. Morrison follows up the question of broadening this subject with the suggestion that "Africa has bees in abundance over its whole length and breadth. Are none of these valuable? We do know that bee-keeping is the sole occupation of large tribes of people in that continent." And, again, he says: "The East Indies, Siam, South China, South America, Asiatic Turkey, and other countries all have their little honey-gatherers. It is very likely indeed that some of them are of great merit and worthy of early introduction."

As a comment on the foregoing I would state that we know something of the bees of the whole northern part of Africa, of portions of the western regions of South Africa, and also something of the eastern part of Africa; and these all belong to our species, as now classified, and will interbreed with our honey-bees. Furthermore, there are no indications that any of them are superior to the races or breeds of *Apis mellifera* which we now possess. Of course, it is quite impossible to say that there are not very different bees, perhaps more valuable, and very possibly some which belong to other distinct species of bees than *Apis mellifera*, in the interior of Africa. It is a matter worth investigation; but since there are much more promising fields still open, they should be looked to first.

Before accepting the statement that bee-keeping is the sole occupation of large tribes of people in that continent, I should want some definite proof or good authority.

Of the other regions mentioned, omitting the East Indies, there is comparatively little hope of finding any thing new and valuable which would not be found in India itself. There are some possibilities in Siam and South China, and some of the bees found there are similar to those of India proper. In South America there exists no native species of the genus *Apis*, but only the stingless melipones; and, however valuable these may be in the absence of others, none of them have been found to be superior to our bees or likely to compete with them in any respect. The combs of all resemble in consistency and general structure those of our own bumble-bee, and the irregular clumps of honey-cells are made of a coarse wax mixed with pollen, the whole resembling in color and qualities the brown cells of the bumble-bee. The yield is insignificant, and many species of these bees do not stand any degree of cold such as they would meet in even most of our Southern States, the ordinary temperature of 50 degrees being sufficient to cause them to give up their flight. To investigate the bees of South America before undertaking a thorough study of those in some other portions of the world would be simply absurd. We know all the races existing in Asiatic Turkey and their qualities. Several of them have been cultivated, and it is incredible that any exist there that would excel those we now have from eastern Mediterranean lands.

The best comment, however, on Mr. Morrison's suggestions as to regions from which valuable bees may possibly come is a mere mention of his omissions! Starting with the Caspian Sea and proceeding eastward, there are vast regions about whose bees we know very little — Turkestan, Persia, Afghanistan, Cashmere, India, Eastern Turkestan, Thibet, Upper Burmah, and western China, as well as Mongolia. These are the most promising fields for new and startling varieties and species. Among the Dutch East Indies, Borneo, Celebes, and very likely also the Philippine Islands, there are varieties of *Apis dorsata* or possibly a distinct species recognized by some entomologists as *Apis zonata*, whose workers are said to be even larger than those of *dorsata*. To chase off into the interior of Africa, or, worse still, the interior of South America, after bees that are almost certain to be not superior to those we now have, and in many instances are almost surely known to be inferior, would be folly, when the Asiatic territories named, and others adjacent to them, in which *Apis dorsata* and *Apis Indica* do exist, are not yet explored.

In addition to these, the race of *Apis mellifera* which is found in Dalmatia, bordering on the Adriatic, and the bees from the territory lying between the Black and Caspian Seas, known as the Caucasian race, as well as some of the types, very probably of our species, *Apis mellifera*, which exist in the Himalaya Mountains, should also receive more attention before going on some other "wild-goose" (bee) chase.

I have repeatedly advocated an examination of the honey-producing plants of other countries, and the introduction of any which give evidence that they would be valuable in this country. Since large sums of money are annually expended by the government for the distribution of seeds, plants, and cuttings, I see no reason why, if bee-keepers were to ask for it, they might not have some attention given to plants that would be of particular value in their occupation.

Requests have repeatedly come to the Department of Agriculture for lists of trees suitable for planting in cities and towns. In making up these, all points for and against the respective species are considered. I have frequently arranged given lists with reference to their honey-producing value, and in the final account this was taken into consideration. The opportunities in bee-keeping in connection with rational forestry, and the benefits to both industries through their connection, have not escaped my observation, and I have made frequent mention of them to leading foresters.

Mr. Morrison says: "But before bee-keepers apply for more recognition let them make up their minds what they really want, before presenting an appeal for aid. It would be a very grave mistake to apply without a well-defined program ready, one that would clearly appeal to the practical man. Congressmen are very practical men."

Before proceeding to discuss the particular points involved in the above, allow me to call attention to Mr. Morrison's new inconsistency, in that he says, referring to the importation of *Apis dorsata*, "It seems rather doubtful whether we should ask for government aid for such a scheme." Yet in the very next paragraph, when advocating the thorough investigation of the East Indies, Siam, South China, South America, and Asiatic Turkey and other countries for their honey-bees he says, "This is hardly a field for enterprise, and is just where a kindly government might step in to assist."

Now, as to having a "well-defined program." When a request is presented through the Department of Agriculture for an appropriation, a definite program is rarely laid down, but more frequently the general lines of work are indicated which it is believed would be beneficial to carry out; and when the sum is appropriated the particular work to be undertaken is determined by the officials in charge of the general subject: nor are they hampered in this; so that it would suffice, were a general effort made to secure a definite sum of money for experimental work in bee culture, which could be taken to include the investigation of foreign races of bees and honey-producing plants, should other lines not be deemed more imperative at the time. Instead of being "liable to service in all sorts of wild-cat enterprises," as Mr. Morrison seems to fear, it is more likely that one might be tied down to routine work, all very well in itself, but preventing the accomplishment of enterprises of great importance and value. It is quite certain that any one engaged in experimental work for the government would endeavor to sustain his own reputation by undertaking only legitimate work promising only good results, and would carefully avoid any thing that might be ranked as "wildcat."

Just here I will digress sufficiently to refute the idea which, over Mr. Morrison's name, can be found on p. 554 of GLEANINGS for July 15, 1898, in which he imputes to the late Prof. C. V. Riley the desire of "spending money on the study of wild bees and not on practical aid to the bee-keeping industry." It was Prof. Riley's desire to solve the problem of *Apis dorsata;* and had his way been followed, that enterprise would long ago have been put through. This might not have been done with any special appropriation for apiculture, since, contrary to the statements made in the article cited, there was at that time no special appropriation for apiculture, and the funds which were devoted to this purpose by Dr. Riley were drawn from the general appropriation for the Division of Entomology.

In conclusion, I have but to reiterate what I have frequently said before, that all that is necessary to secure a special appropriation to be expended in the interest of apiculture, in whatever lines may be deemed best by those who are competent to decide the matter, and willing to offer their suggestions freely, is for apiarian societies and great numbers of bee-keepers of the country to make an active effort to influence their members of Congress, and especially the committees on agriculture, to see the justice and importance of devoting a definite and liberal sum to this purpose.

Washington, D. C., March 30.

TEMPERATURE OF BEE-CELLARS.

Subject to Conditions; other Important Factors; Ventilation more Important than Temperature; Keeping up instead of Building up.

BY S. T. PETTIT.

Answering a question through GLEANINGS concerning the proper temperature of bee-cellars, I will say that any one temperature for all bee-cellars, and all conditions of hives and bees in those cellars, will fit just about as well as one size of boot will fit the feet of all men. I believe 45° is about right when the hives have nothing more than a cloth over the tops; but I believe 38 to 42 is better when each hive has a good cushion on it. But there are other conditions, both of cellars and of hives—important factors in good wintering—that must be considered to determine the right temperature for each cellar. I never could pronounce definitely upon the proper temperature of any given cellar without first consulting the bees in that cellar. If they are happy and contented, and manifest it by their silence and dryness, I would note that temperature; and if it has prevailed for some time I would decide that it is about right for that number and condition of the bees in that cellar. But cellars differ so much in construction, material, and conditions of exposure to and protection from bleak winds that it may be necessary in some cellars, in order to continue a good supply of fresh air, to allow the temperature to drop to 36 during cold spells.

To make my point clearly understood, let me suppose a cellar, well built of brick, cement, or stone, and practically air-tight, and well supplied with adjustable ventilators, but a portion of it above ground, and in a pretty cold place. Now, it is clear that, in severe weather, the temperature will drop considerably — may be to 36 or even 35. Well, if the temperature will, in all probability, rise to 38 or 42 in a few days, it is better not to close the ventilators nor to change them very much, for, very likely, if they be closed the bees will soon become restless and more or less noisy, and the temperature will rise, perhaps, to the ideal of perfection in many minds—45; but I can assure you that *temperature at the expense of pure air is a bad trade—a losing move.*

With warm top packing, or without it, I would rather winter at from 35 to 40 than deprive the bees of a continuous supply of good air. Mr. Editor, I am unworthy of recognition as an humble writer if I shrink from expressing my convictions, even if I stand alone. But I say that the remarks of many of the veterans, such as "building-up," "getting the bees ready for the honey harvest," "coaxing the bees into the sections," also of expressed errors in manner of wintering, clearly show that the wintering problem is not yet fully understood and disposed of; indeed, I question if comparatively many yet comprehend the grand possibilities of perfect wintering. It is not enough to say, "My loss is only 4 per cent;" the important question is, "What about the condition of the 96 per cent? Making two out of three, or giving help from the strong to the weak, are perhaps the next best things to perfect wintering; but they lag a long way behind in the race of the season.

Here is one difference. Good strong colonies may be made from brood and bees taken from those likely to swarm too early if nearly all are in perfect condition. The one who can make five good colonies out of four gets a long start ahead of the man who makes two out of three, and yet the spring count may be the same. If bees are so strong when sections are given that they are glad to go up for elbow room, not more than one hive in fifty will fail to go to work; and the closer the sections are to the brood, the more bees will be crowded into them. You see they can't help going to work. Refusing to do so would be doing violence to the nature of bee life. There they are, crowded right against warm, soft, tempting foundation; brood-chamber full, and their sacs so full that their whole bodies are just aching for a place to put it, and more coming in. Talk about building up the bees for the honey harvest! Let us substitute *keeping up* for "building up;" better fall and winter work, and less spring work.

Another thing, poor wintering is responsible for the impaired usefulness and even for the lives of many good queens.

Aylmer W., Ont., Can.

[I am with you in believing that temperature at the expense of pure air is a bad trade. I also agree most heartily with you when you advocate fresh air and lots of it. Indeed, I am not sure your views are not orthodox.—ED.]

EARLY OR LATE CUTTING OF ALFALFA DEPENDENT ON LOCALITY.

The Future of Alfalfa Honey; The Condition not Reassuring to the Bee-keeper in California.

BY W. A. H. GILSTRAP.

You are nearer right on the alfalfa question when you say that it "depends somewhat on locality" than the contestants generally are on this subject. It is mainly a question of locality.

Few questions are settled to suit everybody at the present time, and for various reasons they can not be. But this problem has been really discussed on two lines, and they have been so blended as to cause confusion.

1. Is alfalfa cut earlier than it was several years ago, and therefore oftener in the season?
2. Is it more profitable to cut early than after the plant is more mature?

As regards the first phase, it is easy enough for any one living in an alfalfa country, with two good eyes and a fair memory, to decide. Local conditions have differed for many years in various localities in California, but in many places the tendency is toward early cutting.

Experiment stations should be able to decide such questions right, so farmers could tell exactly what is best; that is what the stations exist for. Experimenters can bring chemistry to bear on the subject, and then prove or disprove the practical application of the conclusions thus obtained by feeding stock and carefully noting results. Then why don't they agree? Different environments naturally bring different results. It would seem strange if the most successful mode of handling alfalfa on rich sandy loam would necessarily be best on a thin limestone soil where the growing season is more than a third shorter. The best hay for horses may not be best for beef stock or milk production. If any one has advocated very early cutting of hay in this valley, when the hay is intended for horse feed, it has never reached my attention. Many claim that alfalfa should be in full bloom for some time to make best feed for beef cattle, and many claim it should not stand so long. But when it comes to dairy stock I do not know a man who has changed from late cutting to early, and then changed back to late cutting. As dairying is rapidly coming to the front, it is revolutionizing the alfalfa business. As farming is usually done on methods which are supposed to give best average results, the alfalfa is all cut young where dairying is the main thing (and it generally is), and little thought is given to the small loss, if any, that is brought about by feeding the "wishy-washy" feed to other stock.

Mr. Aikin has told in a past volume of GLEANINGS that the alfalfa growing near fences, along ditches, etc., is of considerable help to the apiarist in his locality. The same is true here, although some farmers turn cattle in after each cutting to graze these nooks down. Some honey is secured before each cutting on nearly any ranch, although the amount may be quite small. In practice, the mower does not always do its work as quickly as in theory it should, owing to miscalculation or rush of work. I think this occurs oftener with small farmers, as they are less methodical about their work, just as a large department store is managed on stricter business principles than a country grocery.

It is as safe to expect alfalfa honey in the future as it is to calculate on sage or white clover honey. Very likely there will be a decrease in the amount during the next decade when our entire country is considered. Of course, the acreage of alfalfa is expected to increase as well as some unoccupied territory to be occupied.

If an apiarist contemplates going to an alfalfa country it would be well to investigate this very important point before locating. If he is located, and finds early cutting is greatly reducing his crop it may be wise to move his bees out of the country, as the most extensive bee-keeper in this county (Stanislaus) and some others did last year.

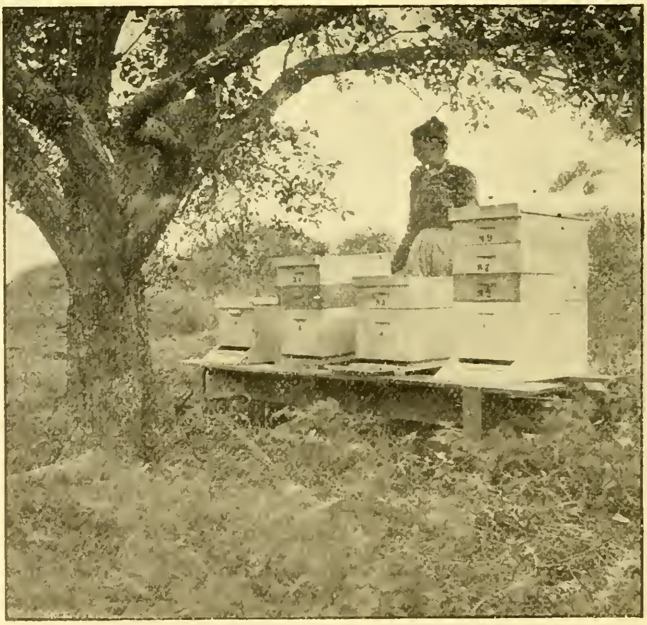
I think that is about all there is of the subject—largely locality.

Modesto, Cal., Feb. 18.

LATE CUTTING OF ALFALFA.

I inclose a clipping from the *Kansas Farmer*, of Dec. 18, on early and late cutting of alfalfa. Although the writer of the article is not writing from the bee-keeper's standpoint, his experience would seem to be pretty good evidence in favor of allowing the alfalfa to bloom long enough before cutting to give the bees a chance to gather a good deal of honey from it.

Editor Kansas Farmer:—My experience in cutting alfalfa is different from some others'. For instance, most if not all the writers on the subject say, cut the first crop early, when one-tenth of the plants are in


A PART OF E. S. WEBSTER'S APIARY.

bloom, and the succeeding crops will be much heavier than if the first crop is allowed to stand until it is all in bloom. I have just read Bulletin No. 114, issued from the experiment station at Manhattan, and it says, "Alfalfa should be cut when not more than one-tenth of the plants are in bloom. Early cutting invigorates the plant. The late cutting of the first crop seems to injure the plant more than at any other time." In September, 1901, I planted six acres to alfalfa and got a splendid stand. In the last week of May, 1902, I concluded that one-tenth of the plants were in bloom, and the crop was ready for cutting, and I cut ten swaths around the field. It set in so rainy and cloudy that I stopped the mower and waited two weeks for fairer weather, lamenting all the time that I was injuring the hay crop by letting it stand so long without cutting. But I was surprised, when I came to cut the second crop, to find that the piece that I cut earlier did not turn off more than about one-half as much as the piece I cut later; and this was the case with the third and fourth cuttings. All through the season I could distinguish the very line where the earlier cutting left off and the later cutting commenced. The ground and soil are all the same, rich bottom, about thirty feet above permanent water, no weeds foxtail, or crab grass in the field. The hay from the earlier cutting did not remain on the field to injure growth of second crop. Please explain to me why my alfalfa acts so contrary.

Garnet, Anderson Co., Kan. J. M. CRAIG.

I also inclose a photo of part of my apiary—four hives, with my wife standing behind them; the other two hives are on another stand which doesn't show in the picture. E. S. WEBSTER.

Hutchinson, Kan.

FOUL-BROOD LEGISLATION IN CALIFORNIA.

BY J. M. HAMBAUGH.

Among the very first bills introduced into the California legislature in January was one with the following title:

An Act—To amend an act entitled an act to pormote the apicultural interests of the State of California by providing county inspectors of apiaries, and defining their duties, and providing for their compensation, and repealing an act entitled, "An act to authorize the board of supervisors of the several counties of this State to appoint inspectors of apiaries, and provide for their compensation, and defining their duties, and for the further protection of bee culture," approved March 13, 1883, said first-named act having been approved February, 20, 1901, and adding five new sections, seven, eight, nine, ten, and eleven, and providing for making the violation of certain sections thereof a misdemeanor.

Senator Ward and Assemblyman Burgess, both of San Diego Co., introduced the bill simultaneously in both houses, and they made rapid headway, reaching the Governor among the very first, to claim his signature. All honor to them, and thanks to all in our legislative halls who so generously contributed to the needs of the suffering bee-keepers, with their influence and votes. Many thanks, also, to those wide-awake officers and members of the California State Bee-keepers' Association, University Farmers' Club Institute, California Central Bee-keepers, etc., and especially our good friend Prof. Cook, who so ably and generously championed the cause of the bee-keepers, and while, in our individual estimation, it does not meet every requirement, we believe we now have upon our statutes the best foul-brood law on the continent of America. It will be noticed the last five sections and the amendment to the fourth section were enacted at this session of the legislature.

SEC. 1.—Whenever a petition is presented to the board of supervisors of any county, signed by ten or more persons, each of whom is a property-holder, resident of the county, and possessor of an apiary or place where bees are kept, stating that certain or all apiaries within the county were affected with the disease known as foul brood, or any other disease which is infectious or contagious in its nature, and injurious to the bees, their eggs, or larvæ, and praying that an inspector be appointed by them, whose duty it shall be to supervise the treatment of said bees and apiaries as herein provided, the board of supervisors shall, within twenty days thereafter, appoint a suitable person, who shall be a skilled bee-keeper, inspector of apiaries. Upon petition of ten persons, each of whom is a resident property-holder, and possessor of an apiary, the board of supervisors may remove said inspector for cause after a hearing of the petition.

SEC. 2.—It shall be the duty of the inspector in each county to cause an inspection to be made, when he deems it necessary, of any or every apiary or other place within his jurisdiction in which bees are kept; and, if found infected with foul brood, or any other infectious or contagious disease injurious to the bees, or their eggs or larvæ, he shall notify the owner or owners, person or persons, in charge, or in possession of said apiaries or places where bees are kept, that the same are infected with foul brood or any other disease infectious or contagious in its nature, and injurious to bees, their eggs, or larvæ, and he shall require such person or persons to eradicate and remove such disease or cause of contagion, within a certain time to be specified.

Said notice may be served upon the person or persons or either of them, owning or having charge or having possession of such infected apiaries or places where bees are kept, by any inspector, or by any person deputized by the said inspector for that purpose, or they may be served in the same manner as a summons in a civil action. Any and all such apiaries, or places where bees are kept, found infected with foul brood or any other infectious or contagious disease, are hereby adjudged and declared to be a public nuisance; and whenever any such nuisance shall exist at any place within his jurisdiction, or on the property of any non-resident or on any property the owner or owners of which can not be found by the inspector after diligent search, within the county or upon the property of any owner or owners, upon whom notice aforesaid has been served, and who shall refuse or neglect to abate the same within the time specified, it shall be the duty of the inspector to abate the nuisance—either by treating the disease or by destroying the infected hives, together with their combs and bees therein.

The expense thereof shall be a county charge, and the board of supervisors shall allow and pay the same out of the general fund of the county.

SEC. 3.—It shall be the duty of the county inspector of apiaries to keep a record of his official acts and doings, and make a monthly report thereof to the board of supervisors; and the board of supervisors may withhold warrants for salary of said inspector until such time as said report is made.

SEC. 4.—The salary of the county inspector of apiaries shall be four dollars per day when actually engaged in the performance of his duties, and itemized necessary traveling expenses incurred in the performance of his duties, as prescribed in this act.

SEC. 7.—The inspector of apiaries may, in his discretion, order the owner or owners, or other persons in charge of bees kept in box or other immovable or stationary comb hives in apiaries infected with foul brood or any other infectious or contagious disease, or within a radius of three miles of such diseased apiaries, to transfer such bees to movable-frame hives within a reasonable time to be specified in such order or notice; and in default of such transfer by the owner or owners, or other person in charge of such bees, the inspector may destroy or cause to be destroyed all such hives, together with their contents, and the expense thereof shall be a county charge, as provided in section two of this act.

SEC. 8.—Any person or persons who shall import bees into the State of California, which said bees are not accompanied with a certificate from a duly authorized inspector of apiaries, or bee-inspector, certifying that such bees are free from foul brood and other infectious or contagious diseases, or who shall import bees from another county within this State not having a bee inspector, into a county having a bee inspector, shall immediately, upon receipt of such bees, cause them to be inspected by a duly authorized inspector of apiaries; and if such bees are found to be infected with foul brood or other infectious or contagious disease, such inspector shall proceed to have such disease eradicated, as provided in section two of this act. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor.

Sec. 9.—It shall be unlawful for any person owning or controlling bees within this State, which are known to be infected with foul brood, or other infectious or contagious disease, to remove said bees to a new location, without first giving ten days' notice to the county inspector of apiaries, stating when and where he intends moving said bees. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor.

Sec. 10.—Any person or persons whose apiary is infected with foul brood or any other infectious or contagious disease, and who sells or offers for sale from such infected apiary any bees, hives, bee-fixtures, or appurtenances, or who shall expose in his bee-yard or elsewhere any infected comb honey, beeswax, or other infected thing, or who conceals the fact that his apiary is so infected, shall be deemed guilty of a misdemeanor.

Sec. 11.—Any person or persons who shall resist, impede, or hinder in any way the inspector of apiaries in the discharge of his duties under the provisions of this act shall be deemed guilty of a misdemeanor.

Sec. 11.—This act shall take effect immediately.

THE USE OF CARBON BISULPHIDE.

Why it may Prevent Comb Honey from Candying; a Motor Bicycle for Running a Honey-extractor; Shallow Brood-chambers.

BY GEO. A. BATES.

If honey really does not candy in combs that have been fumed with carbon bisulphide, the reason is easy to guess. The bisulphide is a solvent of wax, and its vapors might easily soften the cappings as damp weather softens glue. Then you would expect the soft and therefore adhesive cappings to run together wherever the bees have left a crack. That they do leave cracks is shown by the way comb honey absorbs moisture when careful customers put it in the ice-box to keep. Once the cells are sealed tight, there is no mystery about the failure to candy, and the bisulphide would evaporate and leave the wax hard on the very first chance.

In fuming combs I like to spread a cloth wet with the bisulphide over the top combs. This fills the pile of boxes with saturated vapor almost at once, while it takes quite a while to climb over the rim of a saucer; and as diffusion is going on all the time, it never gets as strong.

Here in New York the price of carbon bisulphide is 12 cents a pound, if you furnish the bottle. This is so much less than the price you mention (35 cents) as being charged by drugstores, it seems as if something ought to be done to bring it within the reach of bee-keepers at a more reasonable cost.

The above bisulphide is double-refined. The cheaper kind is listed at 7 cents in 50-lb. lots, and ought to be good enough.

I am using for hives the 5¾-inch-deep supers, ten-frame, two or three of them for the brood-chamber. Such a hive has many good features—one being that, in these shallow frames, thin surplus foundation can be used. I have been using it for three years now; and another is, that every thing is interchangeable. But they are principally useful for "shook" swarms and similar manipulations. Last summer I tried R. C. Aikin's plan on three colonies (Gleanings, 335, 1901), with great satisfaction, and this summer ought to be a good test, for the way the bees swarmed was rather exasperating. You don't have to hunt for the queen—just slip in the excluder, and at the end of the ten days there is no chance of mistake as to which side she is on, and she can be set aside to build up for the fall flow, which they did this year to the extent of three stories of brood; but then there has been no lull in the honey-flow at all this year up to date, Sept. 1. If the plan will work this way every year it will suit me better than any kind of brushing.

Why these doleful wishes that the gasoline-engine could be controlled so as to run an extractor? I should be quite happy if that were the hardest problem to solve in connection with bee-keeping. A motor with changeable spark-time, like the bicycle-motors, ought to be very satisfactory, if used with a fair-sized fly-wheel and a friction clutch. For that matter, why not use a motor-cycle? It will carry you to the out-apiaries, and do the work when you get there. I have had my lathe running by butting the back wheel of a motor-cycle against the fly-wheel, the bicycle, of course, being raised so that the wheel can turn freely. I expect to do a great deal of sawing on this plan before spring.

You may say that the expense is prohibitive; but that is not necessarily so. Our motor and accessories, not counting the bicycle, of course we had that, have not yet cost $30; but it is home-made, and it is not likely that many bee-keepers have the necessary tools. Yet a very good cycle-motor can be purchased in New York for $27.50 from the Chas. E. Miller Co. An acquaintance of mine is using one. We had it here to test, and it seemed very well made indeed. It ought to be possible to get motor-cycles, second-hand, at a reasonable price before long.

We have recently been using a 12-horse-power Packard motor carriage by jacking up one rear wheel and putting the fly-wheel of a screw-cutting lathe in contact with it; but it is rather too much of a good thing. A friend in the neighborhood has just built (or altered) an automobile for prospecting. It has a 25-horse-power gasoline-motor, and a pulley at the back of the machine for extracting rock drills or any thing else. The engine-shaft runs straight through to the back of the machine. The greatest objection at present is the lack of a governor on such motors. It takes one person to regulate the speed and another to do the work.

Highwood, N. J.

[I had not thought of the use of a motor bicycle for running an extractor. Sure enough, it would carry the apiarist to his outyard, and then could be hitched to an extractor with the proper transmission, throwing out the honey while the combs are being uncapped. There may be more in this idea than appears at first on the surface.

In looking up this gasoline-engine subject I found that the simplest and most practicable means of control is by the lead of the electric spark. I will explain, for the benefit of those who are not familiar with the gasoline-engine, that a charge of gasoline and air is drawn in at one stroke. The piston returns, squeezing the charge into about a third of the space it occupied when the piston was out full length. Just at, or before this point, an electric spark explodes the mixture, generating a great pressure, forcing the piston out. The return stroke exhausts the burned gases, when a new charge is drawn in as before. If the electric spark is fired when the compression is greatest, then the greatest speed and power are evolved. The firing of the spark can be timed to take place at any point in the stroke; and, obviously, the later the firing, the less efficient the charge of gas will be. Less power will be evolved, and consequently there will be less speed. This method of speed control, in connection with throttling the gasoline, which still further reduces the speed of the engine, is the one that is used on the best automobiles of to-day.

It is not practicable to throttle a gas-engine as one would throttle a steam-engine; but a great range can be secured in the manner above explained, sufficient to give the necessary speed to an extractor, fast or slow. As soon as we can, we will construct a gasoline extracting-outfit something on the lines suggested. But before building such a machine we desire to study up the subject thoroughly in order that we may put out the most practicable machine that can be devised. In the mean time we shall be glad to receive further suggestions.

A little motor that is used on bicycles would run an extractor very readily, and it would not be very difficult for one of an ingenious turn of mind to rig one up. In the mean time, where a correspondent is able to develop the idea we hope he will furnish us a photo or drawing of the entire rig, so that we can present to our readers the newest and latest thing in honey-extracting. Perhaps Mr. Bates will develop it.—Ed.]

THE HEALING POWER OF HONEY FOR DOMESTIC ANIMALS.

BY WILLIAM A. M'KELLIP.

U. S. Consul, Magdeburg, Germany.

One can see from the following instance, taken from an article by a Mr. Kuederli, in the "*Swiss Bee Journal*," that pure bee honey can be of very great service in the care of domestic animals.

A very fine cow of the author's became very difficult to milk after calving, and was for this reason operated on by a veterinary surgeon. Whether insufficient care was taken during the operation, or from other causes, the cow was taken with a severe inflammation of the udders, during which she gave, instead of twenty liters of milk daily, only seven to eight. Movable hard bodies formed inside the udders, which defied every treatment employed. The owner then remembered that he had read somewhere that, in the case of swellings and inflammations, pure honey often brings about very satisfactory results. Therefore, after milking, he rubbed warm honey into the cow's udders until the honey had thoroughly soaked into the skin. Even after the first trial, an improvement was noted; the cartilaginous formations grew smaller, and disappeared entirely after ten days, and the quantity of milk increased to sixteen liters daily.

Results just as surprising were gained by a teacher who used honey for his fowls, about which he informs us as follows:

A very fine white turkey, which had always had a very good appetite, suddenly lost the same, always sought the coop, and let his head hang. He had, according to all signs, a high fever. When one opened his beak, it was full of slime. After the owner had waited four or five days for an improvement, he remembered his honey-pot, which had already been of service in the sick-room in case of fever and catarrhal troubles. He thought that what is healing for man ought to help the beloved bird, and his hope was fulfilled. He brought some bits of candied honey, and, while his wife held open the patient's beak, he pushed in three or four pieces, one after another. Some hours afterward he went again into the coop in order to repeat the treatment. He had this time taken a piece of brown bread with him, and dipped small bits of it in fluid honey. After he had pushed down the first piece, the turkey snapped at the second, but was either too awkward or too weak to swallow it without assistance. After three or four pieces of honied bread had been given to him in this way he regained his old appetite, and—thanks to our honey cure—completely recovered.

A short time afterward, the teacher noticed that one of his Minorca hens, which he had raised himself, refused to eat, and every few minutes emitted a sneezing sound; the head was also somewhat swollen. At the same time he found out that a rooster of his neighbor's had had the same trouble for several days. In the latter case the head was so swollen that the fowl had not been able to open its eyes for several days. He shut his sick hen in a cage, therefore, and began his honey cure. Three days afterward it was possible to let her out in a healthy condition. The next day another fowl was taken sick with the same symptoms. Then he said, "It is high time that I take to my well-tried cure." He put the end of his finger full of honey several times into the bird's beak, and when he paid his patient another visit in an hour and a quarter the sound in breathing had totally disappeared, and the sneezing stopped also in a few days.

"I am firmly convinced," said the teacher, at the close of his communication, "that in the case of catarrh, and in the first stages of diphtheria in fowls, no better medicine exists than honey, to be given every two or three hours, and I should like to advise every one to use this simple and cheap cure in such cases."

BEESWAX IN THE TROPICS.

How its Production may be Made Profitable; how Extracted Honey and Wax for Market can be Produced at One and the Same Time; Squeezing the Combs in a German Wax-press, and Selling the Wax; why Tropical Honey may be Just as Good as any Northern.

BY W. K. MORRISON.

Some of the tropical apiculturists, owing to the low price of honey, are disposed to pay more attention to the production of wax, which is now rather high in price viewed from the standpoint of the buyer. Most bee authorities have laid it down that wax production would not pay. This may be true of the temperate zone, while it may be very different in the hot latitudes. By way of preface, however, it may be pointed out that the price of really first-class honey in the English and Continental markets is not low at all—rather it is that tropical-honey producers neglect quality for quantity. More attention to quality should be the watchword of the tropical bee-master, for I hold the opinion that just as good honey can be produced "way down south" as "up north." It is all in the method.

It is quite possible to produce a fair amount of wax, and at the same time improve the quality of the honey produced, even though that great oracle, the A B C of Bee Culture, should say otherwise; and if I lay down the dictum that better honey can be secured by dispensing with the centrifugal extractor, don't all shout at me at once.

One of the most important points in wax-producing is to have no drone comb in the brood-chamber. Now, this means just what it says. Apiarists have often assured me their brood-chambers contained no drone comb, when, as a matter of fact, it contained what I should term a goodly quantity.

As soon as the honey season arrives, or is about to arrive, put on queen-excluders over all the brood-chambers, and place on the surplus chamber with frames containing only starters. Having no drone comb below, the bees will simply make a rush to construct some upstairs long before the honey-flow has reached its zenith. If the beekeeper gets the chance he can cut out some of the comb before the bees get honey into it. But what will probably suit most people is to wait and let the bees fill the comb with honey, allowing it to be sealed over and fully ripe.

The next procedure is to cut the combs out, leaving about an inch in each frame as a starter, immediately putting them back. The combs so cut out may be put in the German wax-press, and the honey pressed out. This is the most expeditious way, and does away completely with the mussy job of uncapping. If proper care is used in the various manipulations the honey may be run into packages at once, as squeezed honey requires no straining or settling. In England and other European countries, honey-presses are quite common, and can be bought in London for $1.50.

This may seem like going backward, but it is far from it, as a little experience will show. Fine combs built on foundation in the brood-chamber, with queen-excluder zinc, are things not thought of by old-fashioned folks, and yet these are the essentials of successful wax-production in the tropics; in fact, it is hardly worth while to try to get along without them.

A great many colonies can be handled by one person in this way, swarming is effectually controlled, and worry reduced to a minimum. For example, there is no trouble in keeping the combs free from moths from one season to the next.

There is, however, another plan by which more wax is secured and less honey. In this case the same brood-chamber is used with the zinc excluder. But, two surplus chambers are used, preferably two Ideal supers with shallow frames. The upper one is allowed to be filled with honey, but the middle one is cut every week or so before the bees get a chance to fill it with honey. The apiarist, however, has his work cut out to keep the middle chambers clear of combs. The bees seem to "abhor a vacuum," and constantly build up the combs so ruthlessly torn down by the apiarist. Of course, this plan implies considerably more work than the other, but more wax is actually produced.

One of the cardinal points in wax production is to have no melting of the wax. If melting is resorted to it adds to the expense, and is entirely unnecessary. A Boardman solar can be used; but if I were using it I would alter it considerably. I would use aluminum instead of sheet iron, as it keeps more heat, and is much cleaner. I would abolish the strainer, and use a dam instead to catch sediment. Wax should be molded square, and shipped in boxes to suit foreign markets, and the net weight of the wax should be marked on the box.

White paper should be used to line the box; if not, dust gets in and reduces the value of the wax; for if the least bit dirty, the buyer has to refine the wax, and, of course, that being so, he will pay less for such wax.

There is really no reason why a large amount of wax may not be shipped from the West Indies. The conditions are favorable; and with intelligent care the product ought to rank very high. Cleanliness is an all-important point, and it is easier to prevent impurities getting into the wax than to take them out afterward.

[There is a great deal of practical value in Mr. Morrison's article, and especially to those in the southern part of the United States, and in the tropics. I do sometimes think we concentrate too much of our energy on *honey*-production only, overlooking the fact that wax is high in price. There are times when a low-priced honey, due to poor markets or excessive freight rates, will make wax-production very profitable. The scheme of using an ordinary wax-press, perhaps such as may be had of any dealer, and squeezing the honey out of the combs and selling the wax in the good old-fashioned way, deserves more than passing attention. In European countries wax-presses are common articles of sale among the dealers. Wax is high in price, and both the honey and the wax are produced at one and the same time. With such conditions the honey-extractor is superfluous; and the wax-press, or, perhaps, more exactly speaking, a honey-press, is a necessity.

At the Buffalo convention of the National Association, some four or five years ago, Mr. R. C. Aikin produced a temporary shock on orthodoxy by soberly announcing that it was his private opinion that more money could be made by crushing the combs for the *wax and honey* than by extracting them for the *honey alone*. Perhaps I have not stated this exactly as he put it; but I am not so sure but that certain conditions of market and locality render this a statement of fact. We should be glad to hear from those in position to speak from experience.—Ed.]

BEE-KEEPERS ON THE KICKAPOO RIVER.

Practical Plan for Insuring Bees against Fire Loss.

BY HARRY LATHROP.

For a few days I have been visiting some of the bee-keepers on the Kickapoo. This was for years a locality very much noted for its great crops of basswood honey, Viola on the Kickapoo, and Richland Center on Pine River, being centers of honey-production. But I am sorry to say that the field is on the wane so far as honey-production is concerned. The buzz-saw and the excelsior-mill are fast ruining the trees that have made this locality famous.

I have recently visited the bee-keepers over on Pine River, including the Pickards and C. A. Hatch. The Pickards use and prefer the Gallup hive and frame for extracted honey, as does G. W. Wilson, with whom I have just had a pleasant visit. Mr. Wilson still gets fair crops of honey at his home yard, as he has done for many years, and I believe his methods are worthy of consideration, His hive is the same size in length and width as the eight-frame "L." hive, but it contains 12 frames that are 17¾ inches deep. He has strong colonies, the deep frame being favorable to safe wintering and abundance of stores. For the production of extracted honey I believe I should prefer his hive to any thing else I ever saw. But for comb honey, or for comb and extracted both, give me the standard L. frame or the seven-inch case. One great trouble with the L. hive is that the bees are so often short of stores, and require so much feeding. It is the deep hive that always has "too much honey" that will uniformly show up a strong colony for the working season.

But in this short paper I wish to introduce a subject about which Mr. Wilson and myself had a very earnest conference. It relates to insurance against fire on bees while in the cellar or on their summer stands. Mr. Wilson stated that he could not get any insurance on his bees, and I have heard others say the same thing. I have carried some, but the rate was high. Now, what we propose to have is a mutual-insurance association to be operated through or among the members of the National, or among the members of each State association.

I think it should be so arranged that the bees of each member should be insured against loss by fire at any season of the year, for two-thirds of their actual value, to be determined by an appropriate board. In case of a loss each member would be assessed pro rata according to the number of colonies he owned at the time of the loss. For example, A is a member; his bees are entirely destroyed by fire. It will require an assessment of one cent per hive on all the bees owned by the membership to repay the loss of A as determined by the official board through their local agent or otherwise. If B owns 55 colonies his assessment would be 55 cents. What do you think of it?

You remember that I was up here several years ago, and met a bee-keeper (?) who gave me some pointers regarding "foul brood," stating that he had "seen it so bad that there were at least a dozen eggs in each cell." I met the same man the other day, and did not know him till the subject of foul brood was incidentally mentioned. He then asked me if I could tell the queen or worker bee that caused it. I caught on to the fact that he was the same party, and at once changed the subject. I will close by informing you that the Wisconsin bee-keepers are not all dead, nor have they all decided to go to Colorado.

Calamine, Wis.

[It is true that ordinary fire-insurance companies will not take any insurance on bees. There is no reason why they should be a greater hazard than ordinary farm property. I am not sure but the National Bee-keepers' Association might do well to give this matter consideration. Suppose, for example, we have, in addition to the regular dues of $1.00, a special fee for insurance — say 50 cents on a colony. Is it not possible that a fourth or a half of the members would be on the insurance list? Suppose we have one-fourth. There would then be a fund, according to the membership as it now stands, of $125. Now, out of the $125 there would not be one loss in 25 years. If experience should show that insurance could be carried for less, then reduce the fee. But suppose we started out by offering to insure the bees for 50 cents more than the regular fees of $1.00. This would place in our treasury quite a large sum. In four years it would net $500. I am not so sure but the Association could undertake to insure bees for the simple annual dues of $1.00. This would protect them from litigation, against loss by fire, and would secure all the other privileges of the Association. The effect of such a feature would be to stimulate a large growth in membership. If the indemnity feature in the event of fire were limited to a sum not to exceed $200 in any one case, it would prevent depleting the treasury. But before the Association should attempt to take in the insurance feature without any additional cost, it should impose an assessment for the privilege, and then see what experience would determine in the future.—Ed.]

NEW OR OLD COMBS FOR QUEENS.

Foundation in Full Sheets for the Brood-chambers and Supers Advocated, and Why.

BY H. H. HYDE.

I have noticed the discussion of late as to which a queen prefers—old or new comb in which to deposit eggs. This whole matter rests on the age of the queen and the prosperity of the colony; but it may be safely said that, upon the whole, queens prefer old combs to new ones. In the early spring of the year, all queens prefer the old combs, and will often fill them with brood when they will not touch the new combs. I have thought that, perhaps, the old combs having several generations of cocoons in their cells, were warmer for that reason, and consequently easier for the bees to keep the brood warm. Young queens will lay in new combs almost as readily as old combs. When the colony is prosperous, or after warm weather has come, I can not see that there is much preference shown by queens as to which they prefer, old or new combs, there being but slight preference shown for old combs. All failing queens will not lay in new combs at all unless that is all they have in which to lay. I am not an advocate of changing combs every few years, but I do believe that, after ten or fifteen years' service, all combs should be replaced with new ones for various reasons, chief of which is, I believe, it is a good plan from a sanitary point of view, and the possibility that, from long use, the combs seem to get too heavy and full of cocoons.

I am not giving the foundation-makers a free puff, but it is my experience that it pays us at all times to use full sheets of foundation in the brood-frames, whether it is when building up by the nucleus method, taking care of swarms, either natural or forced, or in extracted-honey production. We have 1000 colonies of bees, and have tried using foundation in different ways and in different amounts from starters to full sheets, wired, and we now use full sheets of foundation in the brood-frames. By this means we get all worker combs, which is one of the chief considerations; and, besides, we believe the gain in honey is more than sufficient to meet the cost of the foundation. In the supers we have used starters, half-sheets, and full sheets; and we believe that the gain in honey by using full sheets will pay the cost of foundation several times over. Last year was a very poor one for honey. We had only one short irregular flow; colonies that had supers of full sheets of foundation built out the frames and capped the honey, while colonies having even half-sheets were away behind in the way of honey. If we had had full sheets in all our supers last year we would have harvested one-third or one-half more honey.

In a good year the difference is not so apparent, but none the less real. We do not notice the difference so much. While the honey-flow is good, colonies build out the frames having starters about as well as those having full sheets; but those having full sheets are filled the quickest; for during a rush of honey *wax is precious*, and the bees do not naturally secrete enough wax to keep pace with the honey brought in. Now, when we give full sheets we have placed them where they have enough wax to make a good start on the combs, and the result is we get, in our experience, from one-third to one-half more honey. We use the Ideal shallow-frame supers; and while localities may differ, we can not see that, in the majority of them, this could affect the matter of using full sheets or less; for we have found them best for both slow and fast honey-flows. In our locality we get our first honey April 1st to 10th, and the flow continues off and on until in July; hence we desire all the brood we can get in the brood-nest; and by using foundation in full sheets we are able to get more brood there, and more honey in the supers; and it is highly important to keep up the brood-rearing until the middle of June. If we were in a locality having only one short honey-flow, and did not desire increase, then I suspect we would prevent all swarming possible; and where we could not, hive on starters in brood-frames and full sheets in the supers; for extra comb and brood after the honey-flow would be of little value, and too much of the latter would be objectionable.

CYPRIAN AND HOLY-LAND BEES FOR TROPICAL CLIMATES.

"Our own apiary in sunny Cuba," Feb. 15, was very interesting to me, and I note that A. I. R. has found trouble in getting the bees to rear brood in the winter time, they being disposed to fill the brood-nest with honey, and the queens being indisposed to lay. Now, what you need down there is Holy Land or Cyprian bees, either pure or their hybrids. They will give you all the brood you want, and will keep you raising colonies of bees that will just roll in the honey. A. I. R. seems to think that they would be too hard to control in the way of swarming. Not so, Mr. Root; they are less inclined to swarm than Italians if you will give the queens room and the bees room to store their honey. Don't undertake to use the same small hives with these strains that you use with three-banders. If you do, then they may be inclined to swarm. They must have room; and if they can't get it they will swarm—otherwise not.

Our locality is one of long honey-flows, and we have found that, if we use three-banders, they may be all right for the first flow; but that ends it with them: after that they reduce the brood and allow the hive to become clogged with honey. Extracting the honey out of the brood-nest will do some good, but not much; hence we have turned to the more prolific races of bees, as they give us more honey and less manipulations and less watching for swarming when we give them plenty of room. For all localities having two or more flows or one long slow flow, Holy Lands or Cyprians are decidedly the bees to keep. Introduce some of the blood into that Cuban apiary, and you will see things move along much more satisfactorily.

GENERAL ARTICLES PREFERRED.

I notice, Mr. Editor, that you call for expressions as to which part of GLEANINGS is the most instructive—the general articles or the departments, especially that of questions and answers. For my part I prefer as much of the general articles as possible, for I get but little out of the questions and answers department. True, there may be things learned occasionally by perusing that department; but I think the time wasted in reading is more than the kinks learned, and for that reason I am in the habit of passing that department with little or no notice, seldom doing more than glancing at the headlines. I, of course, suppose that, for the beginner, the department of questions and answers is the most valuable, and that you as editor will have to give us some of both. I certainly appreciate your willingness to give us what the majority of the subscribers prefer, and you may record me as preferring general articles.

Floresville, Texas.

[From a sanitary point of view it may be advisable to renew the combs every few years providing foul brood or black brood has ever been in the vicinity. In our own case we found we never really got rid of the disease until we had renewed all our combs that had been used somewhere in the apiary during the time we had foul brood just before. It would be continually cropping out.

My earliest and first experience in beekeeping was with Cyprians and Holy Lands, and I should readily suppose that, where other races were disinclined to rear brood, they would raise their full quota in season and out of season, first, last, and all the time. This quality in a warm climate, where the honey-flows are long, is a good one ; but it is a very undesirable one in northern localities where the season is short, and where one wishes above all things not to have all the winter stores used up in useless brood-rearing when there will be no subsequent honey-flows. Even a dash of the Eastern blood in ordinary Italian stock will greatly increase the amount of brood.

Yes, I can readily see why you generally prefer general articles, for you are no novice, although, if I am correct, you are under 25 by considerable. But do not make the mistake of supposing that the department of questions and answers is designed for beginners only. Over half of that department relates to discussions with the veterans. If you skip it from the force of habit you may fail to get some of the best that is published in this journal.—ED.]

Heads of Grain
from different fields

THE ARRANGEMENT OF HIVES IN A BEE-YARD; THE GROUP PLAN OR INDIVIDUAL PLAN.

Allow me to say that I consider your footnotes one of the best features of GLEANINGS; and if it is not intruding upon your time too much I would offer the following footnote to your footnote:

Where is the difference, where the economy in room and steps, to have your bees in close-sitting groups of five or ten feet apart, or to have them scattered with two feet between? I always imagined I had my bees spaced as closely as possible and have the necessary elbow room to work among them. The reason why I want from two to three feet between my colonies is because, when working with my bees, I always stand beside the hive, not behind; besides, I like to have room for a new swarm (it may be the old one) beside every colony. Then to have the rows eight or more feet apart is to have a chance to set the old colony ahead of the old stand, which is very convenient when shaken off or back of the same, as in cases of hiving on the old stand. I practice both methods more or less. Besides, when working in one row the operator does not stand so much in the bee-line of the row next behind him as when they stand closer.

You are right. It causes quite a little trouble and annoyance to shift back and forth in fall and spring; but to prepare our bees for winter, and winter them, no matter in what way, is connected with more or less labor. I can not see how I can lessen the trouble of my way of packing very much unless I suffer other inconveniences. Since another winter has passed, I am more and more in favor of tenement chaff packing for wintering. It is less trouble than wintering in cellar; and for the few years I have practiced it, it has proved successful beyond all my expectation. Again this winter, every one of my colonies so prepared has wintered well (to judge from appearance—they are not unpacked yet), and they all brought pollen the 18th of this month.

Why should I lose any bees in shifting about? If it is done cautiously, not a single bee need be lost on account of it.

Your compositor made me say 4 per cent. It should be 40 per cent.

G. C. GREINER.

La Salle, N. Y., March 21.

[Possibly I put the distance between the individual hives in the group too close. As I look down at my shoe, No. 7, I find by actual measurement it would take just 11 inches. Come to think about it, the actual distance between our hives in the groups is about 12 inches; and the groups themselves are anywhere from 8 to 12 feet apart, depending on the room and the location of natural shade. But you may ask what my big foot has got to do with the spacing of hives in groups. Why, I sit down on one hive, putting my foot lengthwise between the hives. I therefore stand beside the hive just the same as you do, and yet have plenty of room for my feet.

I would set it down as a rule for the group plan, to set the hives just far enough apart so one can get his feet down between. If one wears No. 9 he will, of course, gauge the distance accordingly.

The arrangement is very handy; and I am satisfied that, if you will put your hives out on that plan this spring, you will never go back to the old way. You see, the principal advantage is this: Suppose you are carrying a basket of tools, and you also have a filled super or two containing frames of foundation which we will say you are inserting to give more room. On a group of three or four hives, don't you see you would not have to move your tool-box or your stock of frames? Every thing is within arm's reach. And another advantage, you can sit down on one hive and work at the other. When the hives are stationed each one by itself it takes more room, and requires moving all the paraphernalia every time one moves from one hive to another. But still another advantage, the group plan permits of a driveway between the groups. Figure it as you may, you can get more hives in a given area, and have more room for a wagon, than you would have by having a hive here and a hive there, each six or eight feet apart.

Still again, I do not see how you can move bees back and forth every spring and fall without entailing more or less confusion, *and some loss*. I once was dissatisfied with a row of our hives, or groups, rather, which the boys had stationed at one of the outyards. You see, they put one row of groups, each one on the *south* side of our basswood-trees. I was disgusted, and forthwith proceeded to change the groups to the north side. Well, the bees found their location, it is true; but, oh what confusion! They hovered around the old spots, notwithstanding each group was stationed on the north side of the tree, with the hives in the *same relative* position that they were in on the south side.—ED.]

A MISSTATEMENT CORRECTED; HOW POLLEN IS PACKED IN THE CELLS.

In the A B C, under the caption "Pollen," you seriously quote, from an antique article, statements purporting to describe the bees' manner of packing pollen in the cells, i. e., by ramming it down with their heads. Isn't it rather queer that so absurd a statement should have found a place in the book, and have stayed there so long? However, it is no stranger than lots of other absurd ideas concerning bee life which pass current simply because somebody who chances to be prominent—though any thing but eminent—has so stated.

Just conceive of that delicately poised head, its beautifully articulated antennæ, the simple and compound eyes so wonderfully and carefully protected by hairs, being used as a battering-ram! Even a superficial examination should convince any one that a bees' head was never designed for any such purpose, nor is it ever so used. Organs are always so formed as to fulfill most perfectly their functions, and certainly there is nothing to suggest a ram in the construction of a bee's head. Watch a bee try to pass through a small space; watch it in its work about the hive, passing in and out among the masses of bees, and see how carefully the head is always moved. At times the bee seemingly pushes recklessly forward, but it is only seemingly. If the bee does not ram the pollen down with its head, how then is it packed so solidly?

After a bee has kicked off its load of pollen it moves away unconcernedly, leaving the two pellets lying loose in the cell, together with others, sometimes. Soon another bee comes along, pokes its head in, possibly nibbles at or licks the fresh pollen, gives it a little push, and backs out; hesitates, moves aside only to return and begin packing that pollen in solidly. This is how it is done: The pellets are pushed to the bottom of the cell, or against what pollen is already packed there, and then begins a patient rubbing, spreading, kneading, and packing of the soft pollen by the mandibles. These are closed, and used to *push* with, just as they are used in much of the waxwork about the hive. Wonderfully dextrous is the little bee in the use of those marvelous organs which are hands, teeth, and full kit of tools combined.

While on the subject of pollen, it may be of interest to learn something as to how bees eat it, how it gets into the mouth. They can not bite it off with the mouth and chew it, mixing it with saliva so as to swallow it; and if gnawed off, how does apparently dry matter get to the mouth? Freshly gathered pollen is often licked off by the tongue, and passes thence directly into the mouth, but more often it is bitten off by the mandibles; is softened by the secretions from the large glands opening on to the mandibles, and thence passes into the mouth, but just how I do not know. It is quickly done, and, owing to the location of the mouth, has so far escaped my every effort at discovery. ARTHUR C. MILLER.

Providence, R. I., Jan. 13.

[You are doubtless correct, and the item in the A B C has been marked to be stricken out of the next edition. As it has been credited to the *British Bee Journal*—one that is supposed to be reasonably accurate and careful in everything relating to science—it was allowed to go through edition after edition. But one may raise the question, "How do you know what the bees do when their heads are inside of their cells?" The bodies of the bees plug the opening so that no mortal eye can see what is going on. Nevertheless, I think you are correct, for the special construction of the antennæ and the form of the eyes are such that it does seem ridiculous (when once we come to think about it) that any one should soberly attempt to put out the dogma that the bees use their heads as a "battering-ram." There is great strength in the mandibles of the bee, and these they use for all sorts of mechanical manipulations. We may assume, without fear of successful contradiction, that they use those same instruments when their heads are concealed from view within the cells. I have seen bees grab hold of a piece of wax, and pull and push; but the point of pressure was on or between the mandibles and not on the antennæ, nor the delicate compound eyes.—ED.]

BEES CHILLED TO DEATH (?) COMING TO LIFE AGAIN.

I write concerning an experience I had with my bees a few days ago. I found one of the colonies dead, as I thought. The day before was a nice warm one, and the bees had a good flight. This hive I knew was weak, and also alive a week before, so I decided they had been robbed, as there was no honey in the comb. In looking over the dead bees on the bottom-board I saw the queen all curled up. I put her in a paper, and put that in my pocket. A few hours after, I took her out to show to some of my friends, and, to my astonishment, I found her alive. I then went and gathered up all the dead bees that were in the hive, put them on a wire screen, and held them over a warm stove. Pretty soon they began to crawl. I shook them all back into the hive, and placed them close to the stove, and fed them with warm honey, and now two-thirds of them, apparently, are as well as if nothing had ever happened to them. Were they dead or not? and what made them die so soon after being robbed — less than twelve hours? FRED AMES.

Rockland, Mass., March 9.

[The case you describe appears to be nothing more nor less than starvation and subsequent chilling, neither of which was sufficient to kill the bees. I should assume that the conditions you describe happened in this way: You say the day before was nice and warm. Possibly the bees were robbed out on that day; but more than likely they were on the verge of starvation, and were very weak. As soon as they warmed up they dropped down on the bottom-board, from sheer weakness, with the queen. They again became chilled. You happened on the scene just in time to save them from dying. Warming the queen up and giving her honey was just the kind of medicine she needed; and the same treatment offered to the bees resuscitated them, of course, at once. I think you may rest assured that the bees were never dead, or else they would not be "apparently as well as if nothing had ever happened."

Some years ago we had a report of bees that had lain on a window-sill all winter, in a room subject to zero temperature. It was reported by a bee-man at one of our conventions that those bees on one warm day in spring actually revived. We made all manner of fun of him — asked whether he was joking, or really meant what he said. He was quite indignant, and insisted that he was not joking — that those bees came to life just as do flies on the window in the spring after hibernating over winter. But from the fact that no scientific observers have ever confirmed any thing of this sort, and the further fact that no proof has been produced to show that bees hibernate as do flies and other kinds of animals, we are compelled to conclude that, if they have been in a chilled condition for months, they will stay dead. If any of our subscribers are in possession of scientific proof to the contrary, we should be glad to have the facts.—ED.]

FEEDING BEES IN THE SPRING.

Personal experience in any business is valuable, and the troubles of beginners are sure to be of interest to others in the same class. I am a beginner, and this is the situation: Two colonies in the cellar quiet, and I think doing well; the third, which was a small after-swarm, is dead. I believe their hive is full of comb. There was a third swarm, which got away, all from one colony purchased last spring. They also produced about 50 sections of fine alfalfa honey.

They are called pure Italians, and are in modern eight-frame hives. Now, what I want to do is to get about 200 lbs. of honey next season, if possible, and after that increase numbers what I can. There are no other bees near here, probably not within 30 miles; but there are several hundred acres of alfalfa near by; and as over 100 of it is my own it won't be cut *too soon*. How shall I manage to get the best results, first in honey; and, second, in increase?

Do bees gather honey from cottonwood? also black sage of the prairies?

How often should I open the hives to examine them while in the cellar, and also after they are out?

They were outside until after Jan. 1, and had a good flight two or three days about that time. There are great quantities of rose-brush along the river as well as numerous other flower-bearing shrubs. Do you think this would be a good place for a large apiary?

My object at present is to supply our own table, and learn the business; and, as I get older, perhaps devote a good part of my time to it and let the younger boys pitch the hay. Dan Slayton.

Lavina, Mont.

[I would advise you to set your bees out as soon as practicable in the spring; and when the weather is warm enough so they can fly every day, feed them about half a pint of syrup daily, up to the time the first honey comes in, but not after that. This will strengthen the colonies, for strength is one of the most important requisites I know of in the production of honey. You might practice a little spreading of the brood, as recommended under the head of "Spreading Brood," in our A B C of Bee Culture. After the honey-flow is over, start in for increase by dividing, as recommended under the head of "Nucleus," in the A B C book.

Hives in the cellar should not be opened at all. In the summer they should be examined only enough to see that they are doing well. Once or twice before the honey-flow may be enough. A practiced eye will tell pretty well from the outside of the hive how well the bees are doing.

Bees gather honey from cottonwood and black sage in California, and I see no reason why they should not gather from the same plant in Montana. Yes, you could carry on the bee business quite extensively, and have a large apiary, if you have the requisite skill, where you are.—Ed.]

THE NEED OF A FOUL-BROOD LAW IN OHIO.

It has been frequently urged in bee journals that one of the pressing necessities of the times is the enactment of a law in every State of the Union to protect the apiary from the ravages of foul brood and other contagious diseases among bees. It is to be regretted that so large and important a State as Ohio has no such law on its statute-books; yet from government statistics it produces more honey than Colorado; its bee-keepers are more equally distributed over the State, and the consumption of honey in its manufacturing industries is so large that other States have to be drawn on to supply the demand. A number of bee-keepers in Cincinnati, and adjoining suburbs in the county of Hamilton, held a meeting in August last, and formed the "Hamilton County Bee-keepers' Association," the first of its kind exclusively in this State, with a membership of 50; and at each monthly meeting of the executive committee new members are being enrolled; and from all indications, when the constitution and objects of the association are fully understood by bee-keepers, still greater accessions to its ranks are expected, as in this county there are upward of 500 bee-keepers.

The executive committee feel gratified and enthusiastic at the result of their preliminary efforts. They would strongly urge, through the medium of Gleanings, that similar initiative steps be taken by bee-keepers in each of the 88 counties in the State, as early as possible this ensuing spring, so that this association may have the strong co-operation and united support in demanding of the legislature, through their respective delegations, the enactment of laws as in California, Colorado, Wisconsin, Michigan, New York, etc.

The executive committee solicit correspondence from prominent bee-keepers in each county in furtherance of this object.

Wm. J. Gilliland, *Sec.*

Silverton, Ohio.

[The bee-keepers of Ohio should make a special note of this. The States of New York and Michigan, and province of Ontario, are protected. At present Ohio may be a good dumping-ground for foul brood. Illinois is endeavoring to get a foul-brood measure through its legislature, and may succeed. *I* suggest that we make an effort to form a State association, and with that end in view I should be glad to receive the names of our Ohio bee-keepers who will be willing to deposit a membership fee of $1.00 —half of it to go to the National Association, and half to keep up a State organization—the first meeting to be in Columbus when our legislature is in session next winter. If we can appear before a committee 100 strong from all parts of the State, and then individually interview the members of both branches of the legislature, we could make a very strong impression. There is not a doubt but we could get a good law if the bee-keepers could turn out in such a way as this. Let us now receive the names of those who will be willing to go to Columbus at an appointed time this coming winter, and form a strong and effective organization — one that will have a tremendous moral influence on the law-makers? I will file the names, and then send out circular matter looking to an organization.—Ed.]

WHAT GLEANINGS SHOULD BE, FROM THE STANDPOINT OF A VETERAN.

Mr. Root:—As you seem to want a full expression concerning the subject-matter of GLEANINGS, I might repeat what I once said, but put it in different language. My advice to beginners is to get one or more text-books; next, a few colonies of bees; then one or more papers. Perhaps most of the questions which are asked you as editor can be answered by telling where to find the answer in A B C; if not, it is very important to answer specifically. It takes time to learn to get all needed skill in searching such a work as the A B C book.

When GLEANINGS comes I usually read the pictures first; Straws and editorials next; then Pickings; Heads of Grain and answers to correspondents are scanned and partly read, then short articles and new advertisements. The long-winded articles are held over till spare time or indefinitely. Notes of Travel are never left till the last. Home talks are generally left for leisure hours on Saturday. We should miss the illustrations seriously if they were left out. To illustrate mechanical devices, Notes of Travel, etc., adds much interest. The way nearly all eagerly watched for the Rambler's pictures proves this.

You have my thanks for the very appropriate Watkins write-up on page 187. Perhaps I can show my appreciation of the same in the future.

One of the best articles for the West that you ever published, in my estimation, is the Aikin article on paper packages for honey. W. A. H. GILSTRAP.

Modesto, Cal.

ROBBING HIVES—THE PENALTY IN OHIO.

My best colony of bees, which gave me from $5.00 to $7.00 per year in section honey, and one to two swarms of bees besides, was broken into one cold spell this past winter, robbed of four frames of honey, left open, and bees froze to death. I valued this hive at $50. What is the penalty for such an act in this State?

C. C. MILLER.

Belpre, Ohio, March 23.

[The penalty in this State is very severe. The statute contemplates not only the loss of property taken away, but the actual damage to property not confiscated. The penalty is fine or imprisonment, or both, at the discretion of the court; and imprisonment may mean the penitentiary for a year or so until the thief learns the folly of meddling with bees. What the statutes are in other States I do not know; but the law should be rigid, for the simple reason that the amount of property stolen is usually very small in comparison with the actual damage done. In your case we would put up a sign offering a reward of $50 for the arrest and conviction of the party who has been tampering with your bees. Even if you do not discover the party, it may have the effect of putting him on his guard, as well as warning all others against any further meddling. Our hives have been robbed at our outyards; but after putting up a sign of the kind mentioned, no further depredations were committed, though we never found out who the guilty parties were.—ED.]

PEAR-BLIGHT; GERMS OF DISEASE PROPAGATED ONLY IN FAVORABLE MEDIA.

I wish to acknowledge my misstatement on page 98, that pear-blight bacteria would originate without any inoculation. It was my intention to say that the disease would originate without any inoculation from any kind of insects. I believe any scientist will agree with me when I say that the presence of even one thousand germs in the nectar of a pear-blossom or even the sap of a tree would not cause disease unless the nectar or sap was favorable to their propagation. It is only when the germs find lodgment in elements which will promote their propagation that they will cause disease (blight). We breathe daily thousands of germs of many diseases in the air, but they do not produce disease unless our bodies are in a position to furnish them lodgment and means of propagating. Does any one think that a limb of a pear-tree that winters over the blight would have a perfect blossom on, and the limb and nectar contain the germs to be spread to other blossoms if they did not live in the air? The first blight in the spring would have to be in a process of propagation to reach the blossom. If the disease were under such headway there would be blossom on that limb.

Williamsfield, Ill. J. E. JOHNSON.

AIKIN'S PAPER PACKAGES.

Mr. Aikin's article on paper honey-packages is all right, and a hearty vote of thanks should be tendered him for his successful experiment and invention by proving that honey can be put up in this cheap package. The honeys of the East do not granulate so quickly as the alfalfa honey of the West, so we poor fellows in the East will have to use our old-style packages for a while longer at least. I will, however, put up samples of white clover, buckwheat, and goldenrod honeys this season (providing I get some), and see how these honeys will act in the Aikin paper bags. I certainly am all taken up with the idea and success of the Aikin paper honey-bags.

Chicago, Ill. J. T. HAMMERSMARK.

WANTS GLEANINGS JUST AS IT IS.

In response to your wishes in regard to the general subject-matter of a bee journal, I will say that GLEANINGS is pretty well balanced up. For me to say which department is the most beneficial to me is hard to do. Aside from the bee literature, I would not think about trying to get along without A. I.'s Home writings. It has made me a better Christian and citizen, and a more devoted husband and father.

When I open GLEANINGS I keep turning until I come to Our Homes, then I just dive in with all my heart. When this is all devoured I generally go back to Stray Straws, then to Editorial, then to Doolittle, then to Rambler; but, oh my! how it hurts me to think there is no more Rambler! How I miss him! Then I read General Correspondence and questions and answers. I think I get most information from the correspondence. So, let us have GLEANINGS just about as it is. G. W. DULEY.

Smithland, Ky., Feb. 28.

PHACELIA AS A FORAGE-PLANT IN GERMANY.

Dr. C. C. Miller says, page 8, speaking of phacelia: "But no one has told us yet about its value as a forage-plant." A Mr. Karger of Schreibendorf, writes: Mr. L., a practical farmer, sowed about the middle of May, phacelia, on a piece of ground that had been in potatoes the previous year. Notwithstanding the cold and wet weather it grew luxuriantly, and reached an average height of 80 cm. While the phacelia was in bloom, although Mr. L. fed it to cattle that had been getting grass and green clover, yet they ate it voraciously. He also noted an increase of milk in quantity and quality.

A Mr. Haunschild, of Klein-Sagewitz, says that a farmer of his place had 7 acres of phacelia; after the first cut of red clover had been fed, the phacelia was cut while the second week in bloom. The cows ate it with eagerness, and could hardly get enough. I think the above testimony ought to be sufficient to encourage all those to a trial who would like to have a bee-plant that might be grown in quantity to fill out a gap in the honey-flow while its value as feed (green or hay) would pay the farmer for his trouble and expense, apart from its value as a honey-yielding plant. Phacelia begins to bloom about six weeks after sowing, and care should be taken not to sow it too thick. J. A. HEBERLY.

Weisweil, Baden, Germany, Jan. 22.

A NEW HONEY-SHRUB.

I have watched GLEANINGS closely for bee-plants, as I believe that, if we ever make bee keeping a success in Kansas, we shall have to assist them in every way possible; and one of the main ways is planting alsike clover, sowing catnip along hedges; sweet clover, etc., all of which I have been doing for a number of years. But last year, in purchasing a bill of shrubbery I included one blue spirea (*Caryopteris mostacanthus*), a new hardy plant, I think from Japan. It is a sturdy, upright grower, and is extremely floriferous, blooming profusely the latter part of the season until hard freezing weather. At the time I discovered the first bloom, it was covered with bees. I have never seen a plant that bees seemed so fond of. S. G. BRYANT.

Neosho Falls, Kansas.

WM. M'EVOY AS ARBITRATOR IN A CASE INVOLVING BEES AS A NUISANCE.

By careful and long pleading I am bringing certain neighbors around, and will get all things settled as nice as the flowers of May. The one party would not put up a board wall 12 feet high, and the other would not accept it if he did. I have this about settled, I believe, without arbitration or law. WM. MCEVOY.

Woodburn, Can., Mar. 14.

[I believe it was J. B. Hall, at one of the conventions in Ontario, who, referring in a facetious way to Wm. McEvoy and of the splendid way he had of getting along with people when sent out as an officer to enforce the law, said that he had "just enough Irish blarney" to make everybody feel good-natured; that his very face and manner were enough to disarm opposition; and before he got through, the people who were ready to show fight were unconsciously complying with his requests and *with the law*. Well, it appears this same man can use his Irish blarney to good account in settling troubles between a bee-keeper and his neighbor. The province of Ontario had better keep him as a paid official to settle rows of this kind out of court, for that is always the cheapest way.—ED.]

MOVING BEES SHORT DISTANCES.

I wish to move 125 colonies of bees about 20 rods to a better and more convenient location. Will you give me a point or two on keeping the bees from going back to the old stand? N. J. CRAWFORD.

Armada, Mich., Mar. 17.

[It is a difficult matter to move bees about twenty rods at this time of the year. If you had written during February I would have advised you to move them before they had a general flight. At that time the transposition could have been very easily effected without loss. You can move them now providing you move the whole apiary, keeping each hive and group of hives in the exact ratio that it stood before in the old location; but the whole apiary must be moved at once, or say toward night. The surroundings in the old location must be changed as much as possible; throw in brush, farming-implements, any thing that will fill up and make it look like any thing but the old spot. The bees would be likely to find their new location, but it may result in the loss of some of your queens in the general mix-up. —ED.]

A REMEDY FOR PEAR-BLIGHT.

I should like to have a few of those western pear-growers try a simple remedy for pear-blight, as I never saw it in print. It may be old to them, and no good; but here in Ohio I believe it will restore diseased pear-trees if taken in time. Cut out the diseased wood, and bury a few pieces of rusty scrap iron around the fibrous roots of the tree. I tried this on a Bartlett pear-tree two years ago that was badly blighted. Last year it made a good growth, and no blight, and is looking finely.

ALBERT L. MARTIN.

Leonardsburg, O.

[The first part of your remedy is all right; but I have very little faith in the rest of it—the rusty scrap iron, etc. I never supposed the oxide of iron was a germicide. In the first place, the microbe of pear-blight does not reside in the roots of the trees but in the stems or blossoms. The pruning cure is the one recommended by Prof. Waite, spoken of in our April 1st issue, and is the only rational and scientific treatment so far known; but because it involves a great amount of labor, it may not be carried into effect in some localities. —ED.]

WHEN TO TRANSFER FROM BOX HIVES.

I have bought a lot of bees in box hives, with the intention of transferring; but as I am working for increase I should like to get a swarm from them before transferring (of course, I mean to feed in the fall if needed, for I use the Danz. hive). Would not from the 8th or 10th day after the issue of first swarm be about right to transfer? and would it not check after-swarming at same time?

A. M. CHARRON.

St. Therese, Can.

[If you contemplate transferring from box hives some time between now and next summer, I would advise you to begin the work as early as practicable in the spring, when there will be little or no robbing, say in fruit-bloom. Do not allow those box hives to be filled up with honey, raising, perhaps, a lot of useless drones as consumers, when you can shut off this waste by transferring early in the spring. It will cost you a great deal less to transfer this spring. You can have your swarms just the same.—ED.]

PAINTING HIVES WITH BEES IN; FEEDING BEES CORN MEAL; KEEPING FOUNDATION IN WINTER.

1. Can you paint hives, after the bees have been put in them in the spring, without affecting the bees?

2. Is corn meal good for bees? When and how should it be fed, and what benefit is it to them?

3. Where is the best place to keep foundation in very cold weather?

MRS. JOHN O'BRIAN.

L'Original, Ont., Can.

[1. Yes, we paint our hives while the bees are in, every other season, or as often as the hives need it.

2. Corn meal can be fed as a pollen substitute early in the spring; but Nature usually supplies in most localities sufficient pollen for the needs of the bees. The corn meal is apt to overstimulate at the wrong season of the year. When Nature opens up her blossoms there will be time enough for the bees to begin brood-rearing. In some northern localities the first natural pollen comes from soft maple; in others it will be from willow.

3. It will do no particular harm to have the foundation in a room subject to freezing temperature if it is not stirred or jarred while it is cold. It would be advisable, however, to keep it in a room where it would not freeze, at least. If a truck or something heavy should bump into a box of foundation stored in a zero atmosphere, the sheets might be pretty badly shattered. —ED.]

RAISING CELLS FROM SELECTED STOCK IN UPPER STORIES.

Would the following plan for producing queen-cells be advisable for a honey-producer who wanted to produce a few good queens?

During the main honey-flow, put eggs or young brood from best queens between combs of sealed brood in upper story over a queen-excluder having a strong colony of bees with laying queen below.

FRANK TALBOT.

Plymouth, Ill., March 11.

[The plan might work some seasons of the year, and others it would not. The upper story can be used providing it is during the honey-flow or when the bees are fed lavishly with a little syrup every day to bring about a condition of high prosperity in the brood-nest. A surer plan—shorter at least for the beginner—would be to put a frame of selected eggs in a queenless and broodless colony, or having nothing but sealed brood. After the cells are *once started*, they can be completed in the upper story of a colony having a queen below.—ED.]

GIVING BROOD TO HOLD A NEW SWARM.

I noticed in GLEANINGS some time back an article condemning the practice of giving a new swarm a frame of brood; as this has always been a practice of mine, please give me *your* views in *next* issue of GLEANINGS.

JUDSON HEARD.

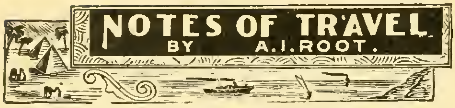
Macon, Ga.

[It has been recommended, and it is our practice, to give every new swarm just hived a frame of unsealed larvæ. Sealed brood is better than nothing, but unsealed far better. There are times, however, when neither brood nor any thing else will hold the swarm; but as a rule larvæ have a tendency to make them contented.—ED.]

A CORRECTION.

I am sorry to note an error in my article in March issue, page 235. The little wooden jig, or anvil, is flat on top, not beveled forward as shown. In this form the end-bar would not stay in place of itself.

Syracuse, N. Y. C. B. THWING.



NOTES OF TRAVEL

BY A. I. ROOT.

HIGH-PRESSURE GARDENING IN CUBA.

Most of the gardening in and around Havana is done by Chinamen, and the Chinese gardens look very pretty; even where they are located by a running stream that is on a higher level than their garden, they seem to have a preference for hand-watering. I believe most of their gardening is done by hand. Their beds for plants are, I judge, not more than four feet wide. The paths are very straight, their beds fine and level. Having the paths so near together is somewhat expensive, but it enables them to step over the bed from one path to another. As we ride through on the cars, these long narrow beds of different kinds of vegetables look like ribbons of various tints and colors. The Chinese have a way of serving up radishes on the table that I think might be copied in the States. They grow mostly the small round radishes. The tops are cut off so they will stand upright on a plate, the roots up in the air. Now, to make them attract attention they cut off the tap-root of the radish, then slit down through the red or pink skin so that this bright skin will roll over like the leaf of a rose. They have a way of making them look so exactly like a dinner-plate filled with beautiful roses that again and again I started with delight, and was just going to say, "What beautiful roses!" when I discovered they were *not* roses, but *radishes*. If prepared just before they are put on the table, the inside of the radish is a pearly white, like a rose with a white center. This contrast with the bright red or pink of the peel makes them wonderfully attractive, and almost everybody will want to get hold of one to see if it tastes as well as it looks. The Chinese seem to have rare skill—at least in Cuba—in making all sorts of vegetables look tempting. At the Chinese restaurants you get every thing at a much lower price than anywhere else; and as a rule it is served in very nice order; and you generally have a generous allowance of fancy vegetables and garden-stuff thrown in.

Down near Güines there are several miles of rich fertile land, so nearly level that it is irrigated by running the water in furrows as they do in the great West. Here many Americans are engaged in growing tomatoes, peppers, summer squashes, and a variety of garden stuff, which is shipped to Chicago, New York, and other northern cities. At the time I was there, they were shipping off carloads of what I should call green tomatoes. There was not a bit of red visible on them anywhere. They said they would be ripe by the time they reached their destination. One of the gardeners had just received word that his tomatoes brought in Chicago $3.50 a crate. Now, as this crate is less than a bushel he got a very good price and a very unusual one. But the commission man wrote him that the extra price was because his tomatoes were of good shape, all of a size, all perfect, and neatly packed. Mango peppers are grown by the acre. They are shipped green like the tomatoes. Summer squashes and other garden-stuff are in some demand; but I think the tomatoes stand pretty much at the head. Irish potatoes are grown a great deal, but they are troubled as they are in Bermuda, with blight. The tomato-growers find that spraying with a Bordeaux mixture and some other chemical is quite an important part of the work in the prevention of blight on tomatoes. The big tomato-worm troubles them a great deal; and I saw a man going along with a pair of sheep-shears cutting the worms in two. He said that was about the quickest and cheapest way to make a "sure thing" of them. I suggested a flock of turkeys, as described in our tomato-book, and I thought of Miss Emma Hochstein's 200 young turkeys. They did not seem to have caught on to the turkey business, however, for keeping down the tomato-worm. This same worm troubles the tobacco-grower. I did not mean to write up the tobacco industry, even if it is true that tobacco comes in second among the three great staples of Cuba. Didn't I tell you what these staples were? Well, they say sugar-cane comes in first; tobacco second, and honey third. I think the tobacco crop is the only one where they go to the trouble of hauling out stable manure from livery-stables in Havana. The tobacco crop is also almost the only one where *irrigation* is largely practiced. The water is, in many localities, hauled from deep wells. They have a bucket holding a barrel or more, and a mule or a yoke of oxen pulls it to the surface or a little higher, where it is dumped into a big tank, and iron pipes carry it from the tank to different parts of the tobacco-field. Some of the more enterprising growers have gasoline-engines to pump the water up, and small farmers carry water by hand out of the brooks.

I do not suppose that the growing of sugar-cane can be properly called high-pressure gardening; and yet there is a lot of money in it where it is managed on the high-pressure principle. It is said that a crop of sugar-cane may be grown on the same ground for a hundred years, without any manuring; and some go so far as to say it can be done without any cultivation; but it is not quite true. The most successful cane-fields near the great sugar-mills are managed so as to grow not more than ten or twelve crops on the same ground without some kind of rotation. It is true that the leaves stripped from the cane go a great way toward fertilizing the ground; but I think the crop is greatly benefited by plowing between the rows after the leaves have decayed somewhat. It is true, however, that, when the cane is cut off close to the ground, it very soon sprouts up again, and in the course of time another crop is ready to cut. Very likely I am not very well posted in regard to the sugar-cane business. Perhaps some resident of Cuba will straighten me out. I know this: There is a vast difference in the amount of cane grown per acre. Where it does well they cut canes eight or ten feet long; and, by the way, if you never chewed a stalk of sugar-cane you have missed something. In Cuba, for months, you will see every man, woman, and child, out in the country looking for extra-large and long stalks of sugar-cane. With machete or a pocket-knife the tough outside bark is peeled off; then they cut off the slices and chew out the juice. My good friend Somerford cut off a stalk as we were passing near a cane-field, and told me to try it. I suggested that it would make me sick.

"Sick? Not a bit of it. Sugar-cane never made *anybody* sick. It makes folks *well*."

So I took a piece and squeezed out the juice. I was astonished at the amount of juice as well as its inviting flavor. Why, it was not far behind maple sap when partly boiled down. I have seen it stated that the young colored people or colored babies, if you choose, grow fat and sleek as soon as they can have plenty of sugar-cane; and it sort o' seemed to me that day that I might grow sleek and fat too if I had nothing to do but to chew the delicious cane that was growing so rank and luxuriantly in that one field.

A few days after, one of the bee-friends took me to see one of the great sugar-mills. I should think there were thirty or forty, may be twice that number, of ox-teams loaded with sugar-cane standing around the mill. Many of the carts had three yoke of oxen on, and some four. Why, my good friend, a Cuban cart costs over $100. The wheels are immense in size; and they are made of harder wood than can be found outside of Cuba. Well, these great carts back up beside a moving platform that runs out into the yard. The cane is dumped on to this platform, or endless belt, which is all the while moving slowly up an incline into the works. A pair of monstrous iron or steel rollers chew up the cane roughly, sending out a small river of juice. Then another pair of rollers, almost smooth, squeeze out another small river of juice; and, to make a "sure thing" of it, a *third* pair gives the last and finishing "squeeze." After it passes out of these last rollers, another endless belt takes it into the furnace to feed the fire; so that no additional fuel is evern eeded, practically, for a sugar-mill. W ell, now, this juice is very good to drink, as I know by experience. It is considerably sweeter than maple sap. But the nicest drink, I might almost say the *very* nicest, I ever got hold of, was some of this same juice after it had been heated and clarified a little further on in the works. It was the exact temperature that I want my hot water. You know that I have to have a drink of hot water half way between breakfast and dinner, and again half way between dinner and supper. I think Dr. Salisbury said the proper temperature was about 110. Well, this hot cane juice was the right temperature to a dot, and I was particularly thirsty. I tell you it just hit the spot. Now, do not misunderstand me. I have said a good many times that the most delicious drink I ever found was pure hot water. The sugar-cane juice is nice for a change; but I guess that, for a steady "diet," the hot water would be a little the safer.

Well, if you think I am going to try to describe that sugar-mill with all its wonderful processes and complicated machinery, that make a modern sugar-mill cost from a quarter to half a million of dollars, you are mistaken. I would if I could; but there are hundreds of things about these immense establishments that I could not understand. The syrup is boiled in vacuum-pans; and when it has been cleansed, and passed through so many operations to get it pure and clean, it is boiled till it is just right to granulate. Then it is run into the centrifugal machines that work a great deal like a honey-extractor. In fact, this beautiful modern centrifugal sugar-machine *is* an extractor; but it extracts *sugar syrup* instead of honey, and does it much the same way. The can itself revolves; and it goes with such lightning speed that the sugar of its own accord levels up at a regular thickness all over the inside of the can. It keeps getting whiter and whiter as the machine continues to run; and finally, when every last bit of syrup is thrown out by the tremendous speed, the dry sugar is ready to shovel into bags.

I visited two different mills. The latter had just been remodeled so as to embody all up-to-date improvements. I was told this remodeling cost about $200,000. But the new apparatus was able to take 1½ per cent more sugar from cane than the old one did; and this 1½ per cent in three months had amounted to $20,000. Besides this, the new apparatus required less than half the number of men to take care of it; so they will soon get their money back for making the change.

There is something wonderful about the *fertility* of Cuban soil—perhaps I should say the *enduring* fertility. A great deal of the land, I have been told, has been growing crops for a hundred years or even more—some of it perhaps three centuries. No manure or fertilizer of any sort is ever used, with the exception of what I mentioned on the tobacco crop; and yet this soil produces sugar-cane and many tropical fruits right straight along. On most of the ground they grow very nice-looking crops of Indian corn. The color looks as good, almost, as it does in the best corn localities in Ohio, and a good deal of the time they do not cultivate it at all. They fit the ground, plant the corn, and in that tropical climate the corn shoots up and crowds out the weeds—at least so I was told; and I also heard that three crops of corn can be grown, one after the other, in one year. Somebody told me this was *possible*, but that it was rarely done. They do not get the yield of corn per acre, however, that we do in the North; and I believe they grow only a peculiar kind of corn adapted to warm climates—something like the corn in Florida. A large part of the corn, however, is used to feed green—corn fodder, as we call it. This is drawn into the city in loads; and a single mule will carry on its back what often looks like a pretty good wagonload of corn fodder.

I have said already that oxen are the principal beasts of burden in Cuba. One reason is, there is always plenty of feed for oxen. When a man stops work he lets the oxen go out and pick grass; and if he gives them a nooning of two or three hours they do not require any thing else. In fact, they will not *eat* any thing else. Our good friend Hochstein was very anxious to teach his oxen to eat grain so they would not need such a long nooning. Somebody told me it had been his hobby for two or three years; but he had not got yet to where his oxen will eat dry corn, Indian meal, nor even wheat bran. They will eat corn fodder at any stage of growth; they will eat the ears of corn off the fodder when they are small and green; but just as soon as the corn began to be the least bit hard they would eat only stalks, and leave the corn. The Cuban oxen seem to have got it into their heads that dry corn is not made for *oxen* to eat. Somebody said the teeth of the Cuban oxen are different from those here in the North. As very little of the ground in Cuba is fenced at all, when a man wants to feed his oxen he simply lets them loose wherever he happens to be. His neighbor returns the compliment, and so on.

Every little while somebody undertakes to farm with northern tools and northern methods; but he always "gets left," so I am told. Of course, there is room for wonderful improvement in Cuban methods in many things; but after one works with them and by their side he will discover they are not so dull after all. I made a great fuss because they ground their corn meal a few handfuls at a time, just as they wanted it; but when we get a bag of corn meal in the good old style, as we have things in Ohio, we find there are insects in Cuba we had not figured on. A great many times the Cubans will try to explain to the Americans why it is that their new-fangled notions will not work; and I have seen Americans that laughed at the idea that a Cuban could teach them any thing. A great many times I have seen a look of pain on the face of the good-natured Cuban when his friendly suggestions were rudely ignored; but after a little more experience, and when I had discovered the Cuban was right and the American wrong, I began to think it would be better all around if we new comers would get down off from our high ideas of "superior learning," and sit at the feet of those who have spent their lives in that tropical land.

Now, friends, this talk is not altogther high-pressure gardening; but I have something to wind up with that I think will hit the spot. Mr. Fraser, the missionary, went with me to see that improved sugar-mill near Mariel. Our path took us through one of the most beautiful and fertile valleys in Cuba. The calzada runs down a long hill into the valley and up on the other side, clear up over the spur of the mountains; and, by the way, some of the finest fields of sugar-cane I ever saw are over these great hills. Well, right where the calzada runs over about the highest point, we found a little nursery for orange-trees, belonging to Mr. Thos. R. Towne, of Quiebra Hacha. It was just wonderful to see the rank luxuriance with which those young orange-trees grew, right on the highest point. Of course, they were budded trees, and after the bud is set the tree is cut partly off and tipped over just above the bud. This throws the growth into the new bud that has just been set; and in just a few months these buds had developed and shot up canes or shoots higher than one's head. I think I found there the finest growth of young orange-trees I ever saw. Bro. Fraser urged that we had to get back to meet the train, and that we could not very well stay any longer. Mr. T. replied, "Oh! but look here: there is something yet you have *got* to see;" and over on the northern slope he showed us rows of beds containing orange-seedlings just about as regular and handsome-looking as any thing could be. I said, "Look here, Bro. T., I have written a book, or a part of a book, on 'How to Support a family on a Quarter of an Acre.' Now, if I am not mistaken we have got a pretty good demonstration right before our eyes. Will you please tell me what these thousands of young orange-seedlings are probably worth?" Now, I can not remember exactly, but I think he said he would not want to take less than $2000 for what was growing on that little plot. There was a perfect stand; the ground was clean; every particle of it was stirred in the most approved way, and the little seedlings had nothing to do but to *grow*.

Down at the foot of the slope, in the corner of the field, several men were at work at something in a lot of barrels. "Friend T., what are those men doing down there?"

"Why, they are taking the seeds out of the native sour oranges to plant in beds to grow more orange-trees."

I asked the price of one of the nicest little trees, about as high as my head, and one that was already budded to bear fruit. The reply was, "Well, that is one of the latest improved thornless (as you see). and *seedless* oranges." He gave me the name, but I have forgotten it. You see, they have not only got so they can grow orange-trees without *thorns*, but they grow them without *seeds* by the budding process. I think such a tree is worth about a dollar; but ordinary trees, ready to set out, of the latest and best sorts, run from 30 to 40 cents. Let us now change the subject a little, if you please.

My friend, did you ever see a time when it was worth a dollar to be permitted to look at some beautiful sight for just a *quarter of a second?* I remember one such experience. On my return from Cuba I got on an electric car at Cleveland to go home. It was just about sundown, on Saturday night, and I was very anxious to get home that night. Out in the west part of Cleveland there is a sort of market right alongside the street-car line. This market seems to be in full blast Saturday evening—at least it was that evening. Of course, I was looking for fruits and vegetables on sale about the first of March. The car was running swiftly; but all at once my eye caught a glimpse of something on the broad sidewalk that almost made me shout in admiration. I do not think my eye rested on it more than a quarter of a second, but it thrilled every fiber of my being. Shall I tell you what I saw? First there was a group of azaleâs—perhaps a dozen. They were in five or six inch pots, and set in squares, say 3×4, may be a foot apart. There was just room enough between the plants so the spherical mass of bloom that covered each pot did not quite touch its neighbor. There were different colors, all looking their very best. Next was a similar show of cinerarias. By the way, there is a startling brilliancy in a pot of cinerarias that wakes up a love for flowers as almost nothing else can do. Last, there was a similar show of primulas, every plant a perfect mass of bloom, and all three —azaleas, cinerarias, and primulas—were all shades of color. I should guess that such azaleas might bring from 75 cents to $1.00 each; cinerarias perhaps from 30 to 40 cents each; primulas from 15 to 20. There was a crowd on the street looking at them; and it was a wonder to me that every man, woman, and child did not grab for one of those beautiful plants and lug one home to beautify their own domicil. I did not say it out loud, but I kept thinking to myself, "Oh, I want a beautiful little up-to-date greenhouse, and I want to grow such plants as those. I would rather do it than any thing else in the world." But Mrs. Root would tell me, and my own conscience would tell me, that it would require days and perhaps nights of careful watching and attention to make a real success of such things; and I rather think just now at this time of life God calls me elsewhere. But I am glad, dear reader, that it is my privilege to give you this glimpse of the possibilities that lie in the way of supporting a family on a quarter of an acre, or, if you choose, *high pressure-gardening.*

THE STATE OF MAINE AS A HEALTH RESORT; FREAKS OF ONIONS.

Mr. A. I. Root:—I am about your age; and as we jewelers say, "Borax Brothers." I carried on business as a manufacturing jeweler at 95 Fifth Av., New York, for some 25 years. I have lived here some 15 years and can say I like Maine almost as well as you seem to the cabin in the woods. Yes, I read GLEANINGS (after I read your interesting talks and experiences). I have just finished your manly *expose* of the Giant Gibraltar onion. I had some experience a few years ago with onions. I had sent me a barrel of onions from New York for home consumption. They were nice, but medium in size. Not needing so many for use we planted part of them; and such a crop one seldom sees. They grew larger than the onion planted, and from 4 to 10 to each onion planted, all in a cluster. I saved a good supply of these and planted them the following year, thinking to get a fine crop. Well, I had all "scullions" as you call them. Being interested and also disappointed at such doings of Dame Nature I proceeded to investigate. I found the original onions sent me came from Egypt, and were evidently grown direct from seed. This seems to be an onion trait (such as produce cluster onions). You first plant the seed, and then, planting *these* onions, they produce the clusters and your large crop. Planting the onions from the clusters only, produces the big-neck top (seed), and no bottom. An old Maine farmer told me this had always been his experience.

You are correct about county fairs. I always visited *all* the fairs about New York, solely to see the machinery, etc. I often get an invoice of tools, goods, etc., as the storekeepers here charge the Dutchman's "one per cent." I approve of fewer small dealers, larger sales, and not such exorbitant prices by the retailer. I sell such potato-hoes as you tell about (and not known here, as you have told), for 40c each. You say 55 cts.

We have five orchards on our farms here. The one on our home farm yielded several thousand bushels of apples this year. The fruit was the finest, and of many choice varieties; but for all that we made no sales—no home market, and barrels to ship such a crop are out of the question, with freight added. The situation may improve in the near future. We feed about half a barrel of apples to our poultry daily, and they can eat a nice Seek No Further, Northern Spy, Maine Baldwin Famouse, etc., such as I see on sale in New York at 2, 3 and 4 cents each.

North Hancock, Maine. L. P. AUSTIN.

Friend A., the onions you mention were, without question, the York State potato onions. Our five-cent onion pamphlet, now in press, describes this onion fully; but I am puzzled to hear you tell about its going to seed. The potato onions we have worked with never sent up seed-stalks at all. I believe, however, an onion we call *shallots* sends up a seed-stalk bearing black seeds. If these are planted they produce onions that multiply like multipliers of potato onions. Now, we did not try growing them from the seed; but our shallots, after three years, got so they sent up seed-stalks, and were no good. Your hint might help us out in the matter. By the way, the freaks and queer things about the onion-plant would fill a book. I have thought several times about writing it up, but I concluded to wait until I knew a little more; but the more I look into the matter and talk with others, the more I am impressed with the fact that there is a great deal yet that nobody knows — I mean about this matter of sporting, and exhibiting new traits and peculiarities.

If you can sell a potato-hook with tapering tempered tines for 40 cents you ought to do a big business among potato-growers, I should think.

In regard to the apples, is it not possible you are so situated you could barrel them up and send them to the large cities, where they bring two or three cents each? Thanks for your suggestions.

L. Stachelhausen,

whose picture appears alongside, has an article in the BEE-KEEPERS' REVIEW for April, telling how to prevent both natural swarming and increase, yet get the best results in comb-honey production. It is a modification of, or addition to, slowly swarming, wherein the young bees, as they hatch in the old colony, are transferred to the shook swarm on the old stand, thus keeping that booming and piling up the comb honey.

Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the sender to the REVIEW one year for only 90 cents.

W. Z. Hutchinson, Flint, Michigan.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin=the=Queen=Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long=tongued Red=clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa, writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens Before July First.

	1	6	12
Selected Warranted	$1 00	$5 00	$9 50
Tested	1 50	8 00	15 00
Select Tested	2 00	10 50	
Extra Selected Tested—the best that money can buy	4 00		
Two-frame Nuclei, no Queen	2 50	14 00	25 00

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin=the=Queen=Breeder, Parkertown, OHIO.

For 1903 You Require Supply **PERFECT QUEENS**

Until further notice, to keep up with orders for Golden queens from old customers who find them to be splendid workers, I shall discontinue the other yards. I can send Holy Lands and Carniolans mated in this yard at the same prices. These are good crosses. Untested queens, $1.00 each; tested, $1.25. A few choice breeders, $2.50 each.

GEO. J. VANDE VORD, Daytona, Fla.

A Great Paper Enlarges

The Feather, Washington, D. C., has been enlarged to nearly twice its former size, and is much improved in every way. The best features of the old size are retained. Positively the most beautifully illustrated poultry paper published. It's practical too. Subscription price, 50 cts. per year; 5 years, $1.00; 9 months and picture of fowls in natural colors, 25 cts.; sample free.

G. E. Howard & Co., 305 10th St., N-W., Wash't'n, D. C.

Victor's = Superior = Italians

Go by Return Mail, and are Guaranteed to Give Satisfaction, or Money Returned.

I am ready with the same old true and tried stock of Italian queens and bees as of old. My queen-mothers in yards No. 1 and 2 are serving their fourth year in that capacity, 1900-1903. Their daughters have pleased The A. I. Root Co., W. Z Hutchinson, O. L. Hershiser, G. M. Doolittle, R. F. Holtermann, F. B. Simpson, and many others prominent in apiculture. In fact every customer has been pleased as far as I have heard. I COULD FURNISH HUNDREDS OF THE VERY STRONGEST TESTIMONIALS, but space forbids. Practically all the queens that I have sent from these yards were daughters and grand-daughters of the two "Oil Wells," as we often call them. Untested queens, $1.00 each; select untested, $1.25 each; tested, $2.00; breeders, $3.00 to $7.00. Send for illustrated price list.

W. O. VICTOR, Queen Specialist, WHARTON, TEX.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring —*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 18 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16. 1903.*

Prices of Queens: Each, $1.00; 12, $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5 banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity, from 5 to 35 miles apart, February and March, $1.00 each, or $9.00 per dozen. All other months, 75c each, $4 25 for six, or $8 00 per dozen. Tested queens of either race, from $1.50 to $3 00 each. Breeders from $3.50 to $10.00 each. 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**

P. O. Box 79, Beeville, Bee County, Texas.

Queens

My specialty is queen-rearing I rear two strains only—Long-tongue Red-clover Three-banded and the Golden Five-banders that work red clover as well as the three-banders. These two strains are the best bees in this country, all things considered. I furnish more dealers with queens than any other breeder in this country. Why? Because the queens give their customers the best satisfaction I insure all to be purely mated. Untested, 75c each; tested, in April, $1 25—after April, $1 00 each. My former address was Caryville, Tenn., but my queen trade has doubled for several years and I have moved to Texas. Remit by postal money order to **Daniel Wurth, Karnes City, Karnes Co., Texas.**

$QUEENS--$BEES--NOW.

A. L. Swinson, Queen-breeder, furnishes best to be had in U. S. **First-handed,** Warranted queens, $1.00. Tested, $1.50. Breeders, $5 to $10. **American Albino Italians, and Adels mated to Albinos.**

SWINSON & BOARDMAN,
Box 358, Macon, Ga.

Leather-colored Italians For Sale.

My bees were awarded 1st premium at the Minnesota State Fair in 1902 and 1901. Queens guaranteed in quality and transportation. In standard 8 or 9 frame hives, $5.00 each on car. A reduction on lots of 20 and over. Ready for shipment April 10.

W. R. ANSELL, Mille Lacs Apiaries,
Milaca, Minnesota.

Do You Buy Queens

If so, it will pay you to investigate my claims. I breed from best honey-gathering stock, and rear queens by best-known methods. I guarantee good queens, and beautiful, gentle bees. Some of my customers have bought 100 to 300 queens per year for *their own yards.* Write for circular and information. Untested queens, $1 00; $9 00 per dozen; tested, $1.25.

J. B. CASE, Port Orange, Fla.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

Teachers' Bible only 98c. Size 5½x7¾ in. Minion type. French seal, divinity circuit, red-under-gold edges. Nearly 400 pages of helps, including illustrations, concordance, maps, etc. Same with thumb index, $1.38. Postage 17c extra for either. **Sheet Music.** Catalog and special offer free on request Address

M. T Wright, Medina, Ohio.

S. D. BUELL

Manufactures bee hives, and is agent for The A. I. Root Co.'s goods, which are sold at factory prices. Catalog sent free. Bees for sale. Beeswax wanted.

Union City, Mich.

Golden or Leather-colored Honey Queens

bred from the Laws strain. Untested, $1.00; tested, $1.25; selected tested, $1.50; extra selected, $2.00; breeders, $2.50 to $5.00. None better.

H. C. TRIESCH, Jr., Dyer, Ark.

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence, : Doniphan, Missouri.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Say, all Beekeepers

One Question, Please.

If you were offered a hive that would save you one-half of your time and labor in its manipulations; one that would save you more than $1.00 per hive in costs of extras; or a double-wall hive for the price of a single-wall hive, would you not investigate its claims or merits? **The 20th Century Ideal** does all the above. Then why not be on time, and send to-day for circulars? See pages 72 and 164; also the *Review* for Feb., pages 48 (excuse errors on that page) and 60. Book and hive are two of the grandest "hits" of the age. Order book NOW. Price 25c, and your money back if you are not satisfied.

T. K. MASSIE, Tophet, Summers Co., W. Va.

Only One Thousand Copies

of my new work **Improved Queen-rearing**, printed. Book is selling like hot cakes. All new points in queen-rearing brought down to 1903. Lots of new points, too. Order at once and get book and one of the **Finest Adel Breeding Queens** for $2.00. Catalog and prospectus ready.

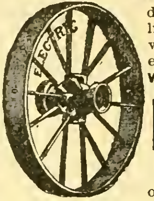
Henry Alley, Wenham, Mass.

Our Advertisers.

A large lot of comb foundation shipped by Dadant & Son, of Hamilton, Ill., to their French correspondent at Paris, Mr. R Gariel was unexpectedly stopped at the custom-house at Havre, France, and ordered examined for traces of adulteration, by the French revenue officials Samples of the foundation were forwarded to the government chemists at Rouen, who, after analysis, reported the foundation to be made of *absolutely pure beeswax*.

Our readers should see what the Ohio Carriage Mfg. Co., Station 27, Cincinnati, O., have to offer. Write them for prices and illustrations. Their advertisement is on page 355 of this issue.

A Wagon's Worth



depends upon its convenience and life. The life depends upon the wheel. You get every convenience of the **Modern Low Handy Wagon** and double its life by using

ELECTRIC Metal Wheels

For a few dollars you turn your old running gears or one you can buy for a song, into a new wagon. Straight or staggered oval steel spokes. The stoutest wheel you can buy. **Any height, fit any wagon.** No repairs, no rutting, light draft, long service. Let us send you free catalog to show you how it saves you money.

Electric Wheel Company., Box 95, Quincy, Illinois.

SPRAYING

Our line of sprayers and appliances fits every man's needs.

Hand, Knapsack, Bucket, Field, Barrel, and Power

sprayers, twenty styles. Best nozzles made, attachments, formulas, etc. Select the useful and reliable. Catalog free.

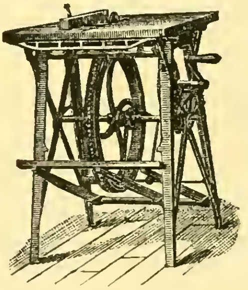
THE DEMING CO., Salem, Ohio.

Western agents, Henion & Hubbell, Chicago, Ill.

GREAT POULTRY BOOK

My 1903 catalogue. Elegant in illustration, full of practical hints, describes 56 breeds of prize winners. Low prices for birds and eggs. Book postpaid, 10 cents. Calendar for 1903 on cover.

B. H. GREIDER, RHEEMS, PA.



BARNES' Hand and Foot Power Machinery.

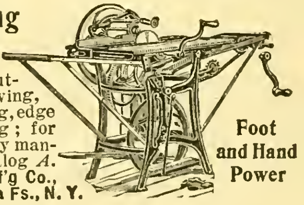
This cut represents our combined circular saw, which is made for beekeeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial.

Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A.*

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

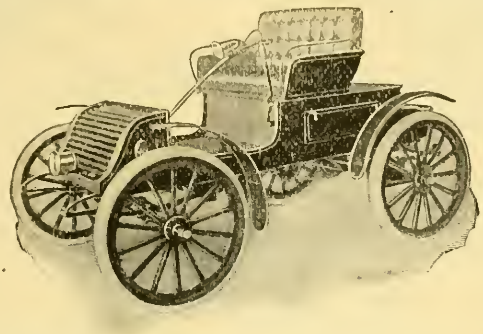
PAGE FENCE BEING

acknowledged the Standard, why don't some company try to imitate its quality and serviceability?

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

$750 HYDRO CARBON

Capacity: 100-mile Gasoline-tank.



Capacity: 300-mile Water-tank.

Weight 940 lbs.; seven-horse power actual. Will run at any speed up to 25 miles per hour, and climb any grade up to twenty per cent. For catalog, address

Friedman Automobile Co.,
3 East Van Buren St., Dept. B, Chicago, Illinois.

The Test of Time

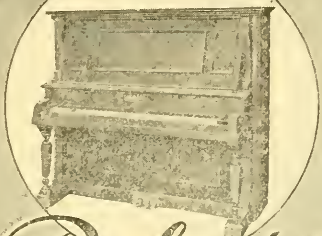
not only proves the increasing popularity of plain sections and fence separators, but the superiority of these supers for the production of comb honey over other styles. The use of Root's Hives with plain sections and fence-separator equipment mean

Larger Crop, More Fancy Grade,
Less No. 1 and No. 2 Grades, Better Price,
Satisfied Merchant, Enthusiastic Customers,
Increased Sales, Greater Profits.

and a ready market the coming season, which is one of the important factors in the building-up of a home market for honey. It is one thing to dispose of a fair grade of honey at a moderate price, but quite another to retain the good-will of the merchant handling your honey. To secure this co-operation and stimulate the trade, great care should be exercised as to the attractiveness of the honey offered. It should not only be "Fancy," but the honey should be well capped, and put up in neat shape. To obtain these results you should use Dovetailed hives and supers equipped with plain sections and fence separators. Insist on Root's make and you will not be disappointed.

The A. I. Root Company, Medina, Ohio.

N. B.—If you are not posted as to where you can buy Root's Goods advantageously, write us. Also ask for catalog of bee-keepers' Supplies and specimen copy of Gleanings.



The Ideal Piano

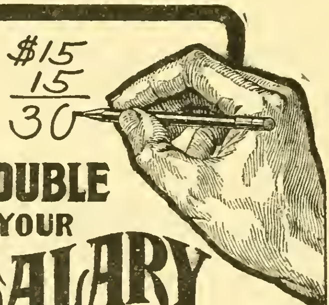
Packard

Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the

Highest Artistic Creation

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. *Catalog and full information free on application.*

THE PACKARD COMPANY
P. O. Box F Fort Wayne, Indiana



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100 Varieties. Also Small Fruits, Trees, &c. Best Rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. LEWIS ROESCH, Fredonia, N. Y.

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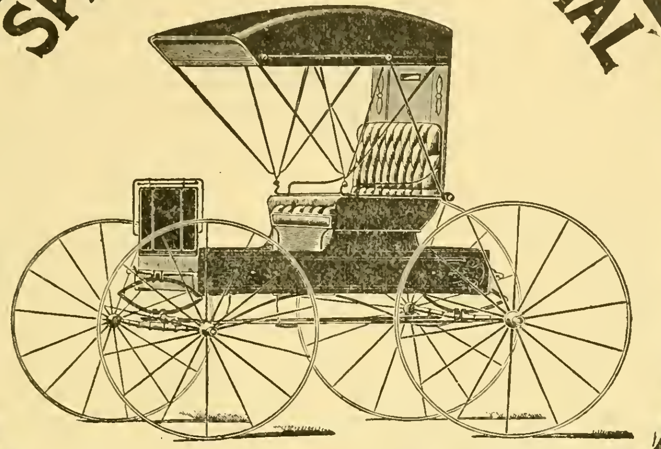

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Ohio Carriage Mfg. Co., Station 27 Cincinnati, Ohio.

GOOD READING

We Mention here a few booklets, pamphlets, etc., which we will mail free upon application to parties interested. If you wish the whole number, enclose 5c for postage.

Books for Bee-keepers is a booklet of 16 pages which gives a complete list of bee-books, including German and French bee-books and translations; books on fish-culture, strawberry-growing, greenhouse construction, gardening, etc.

Bees and Queens is an 8-page booklet containing much valuable matter on the subject of queens; reasons why they don't lay; test of purity, etc. It also names price on imported and domestic, Italian and Carniolan queens, nuclei and full colonies.

Facts About Bees is a 72-page book by F. Danzenbaker. It is of especial interest to producers of fancy comb honey. It deals chiefly with the Danzenbaker hive; drawings are used to show the construction of the hive and the manipulations to secure the best results. A number of pages are devoted to reports of bee keepers who have used this hive. Ninth edition now ready. Mailed for 2-cent stamp.

Outfits for Beginners is a little pamphlet giving the initial steps necessary for one to make a successful start in bee-keeping. It also includes a number of outfits, and names prices of same.

Food Value of Honey is a 14-page leaflet by Dr. C. C. Miller. It tells why honey should be eaten in preference to other sweets, and includes many cooking recipes in which honey is used. This is intended for free distribution by producers to stimulate a greater demand for the sale of their honey. It can be printed with the producer's card on front cover and advertisement on the back, very cheaply, if desired.

Seed Catalog. This lists seeds for the garden, seed potatoes, basswood seed and trees, alsike, white Dutch, medium and mammoth red-clover seed, alfalfa, sweet and crimson clover seed, buckwheat, rape, cow-peas, turnip, sunflower, soja beans, and coffee-berry, borage, catnip, dandelion, motherwort, figwort, mustard, spider-plant, portulaca, Rocky Mountain bee-plant, sweet peas, and other seeds; thermometers, barometers, powder-guns, insecticides, tobacco-dust, sprayers, hot-bed sash, starting-boxes, potato-planters, transplanting-machines, etc.

Rubber-stamp Catalog illustrates and describes self-inking stamps, molding and block stamps to be used with ink-pads, Model and U. S. band daters, ink-pads and ink for renewing the same, interchangeable stencils, metal-bodied rubber-type and holders, and printing wheels.

Label Catalog includes samples of one, two, and three color work; also labels printed on three colors glazed paper; price lists for the printing of circulars, catalogs, letter, note, statement, and bill heads; shipping-tags, envelopes, business cards, etc.; display cards and caution cards for shippers of honey, etc.

Spanish Catalog is an abridged edition of our regular catalog of Bee-keepers' Supplies, and is of interest to Spanish readers only. Give us the names of any of your Spanish friends interested in bee-keeping.

The A. I. Root Co., Medina, Ohio.

Squab Book Free

Squabs are raised in 1 month, bring *big prices.* Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into.* Send for our **Free Book,** "How to Make Money With Squabs" and learn this rich industry. Address
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—ALSO—

BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

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Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once
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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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A double berth in a tourist sleeper, Chicago to San Francisco, costs only $6. The service via the Chicago, Milwaukee & St. Paul and Union Pacific line is thoroughly comfortable and satisfactory.

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CATALOGUE FREE. **INDIANA STEEL & WIRE CO.**
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Sixty-five colonies of bees, forty-six of which are in Root's dovetailed hives, the remainder in chaff hives. Apply to **James McKay, Tuscola, Mich.**

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100 No. 1 (5 to 7 ft.) Kieffer Pear Trees for $12.00, f. o. b. Others equally cheap. Will be pleased to quote.
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BLACK AND HYBRID QUEENS.

200 "Gallup's umbillical cord" natural swarm-reared, black and hybrid queens, from box hives as transferred. Blacks, 20 cts. Hybrids 25 cts. Select 10 cts. extra. JOHN M. DAVIS, Spring Hill, Tenn.

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kills currant-worms, potato-bugs, cabbage-worms, and insects on flowers; used 22 years successfully. **Sold by the Seed-dealers.** For booklet on Bugs and Blight, address

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Send 10c and the names and addresses of ten fruit-growers to

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for a year's subscription. Regular price 50c per year. Offer good only to new subscribers. Twenty pages or more every month. If you grow any kind of fruits you can not well afford to be without it. Samples free.

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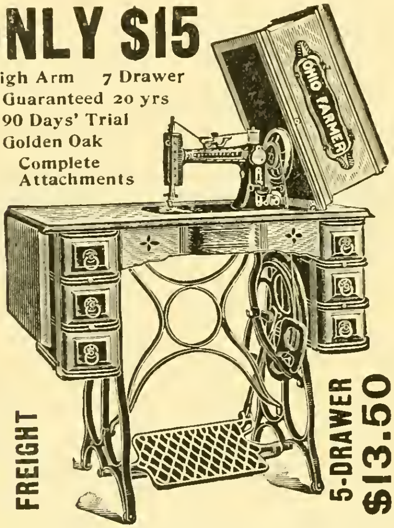
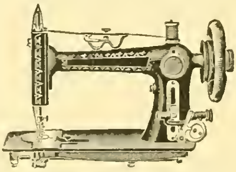


Positive four-motion double-feed, lock-stitch, automatic bobbin winder, patent stitch-regulator, self-threading throughout, self-setting needle. Handsome GOLDEN OAK, seven drawer table, with indestructible bent wood box top. Complete set of attachments, accessories and instruction book free. We prepay freight west to Miss. river and south to Tennessee. Money refunded after a 90-day trial if not entirely satisfactory.



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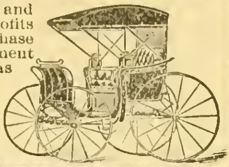

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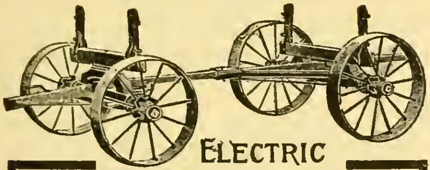
Send for the buggy you want and test it by **30 Days' Free Trial**
We Make Our Buggies, every one of them, in our own factory. We sell direct to you, saving all profits. Get our new Buggy Book, FREE. It will save you money.
Kalamazoo Carriage & Harness Mfg. Co., 133 Ransome St., Kalamazoo, Mich.



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Handy Farm Wagons

make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous **Electric Steel Wheels,** either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.
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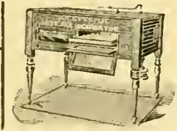

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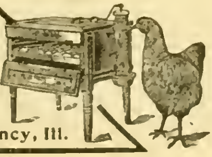

$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.
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works so much faster, forces the liquid into every crack and destroys germs and insects which the brush would pass over. The complete machine, express prepaid for only $7 50
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Full particulars on application.

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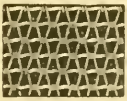
BUILD YOUR OWN INCUBATOR,
we sell complete illustrated plans by which a 200 EGG HOT WATER INCUBATOR can be built for about $8
We furnish Lamps, Tanks, Regulators, etc., at cost. Big money building and selling them. Write to-day for particulars and FREE circular "How to Make and Save Money with an Incubator."
Channon, Snow & Co., Dept. 139 Quincy, Ill.



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COILED SPRING FENCE CO.
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200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

SPECIAL NOTICE
Special Notices
By Our Business Manager

SECOND-HAND 60-LB. CANS FOR HONEY.

We have a good stock of very good second-hand 60-lb. cans, two in a case, which we offer in 25-case lots or more at 40 cts. a case; 10-case lots at 45 cts. The most of these cans have been used but once; are bright, and practically free from rust, and are a bargain at the price.

BEESWAX MARKET.

We have secured, during the past two or three weeks, nearly ten tons of beeswax, and now have a very good stock on hand. Still at the rate we are now making it up into foundation this will not last us through May, and we are prepared to take in all you can send us until further notice, at 30 cts. cash, 32 cts. trade, delivered here.

HONEY JARS AND BOTTLES.

We have received here a carload of over 200 gross of honey-jars, consisting of 5 oz., ½, 1, and 2 lb square jars with corks; 1 and 2 lb. square jars with spring-top fastener; ½ and 1 lb. Tiptop jars with spring top fastener; also 1-lb. octagon jar furnished with spring-top fasteners. Prices on these various jars are given in our catalog. Those who use them in larger quantities will do well to write us for prices, stating quantity, style, and size used. We are expecting very soon a carload of No 25 jars and Mason jars. A car of these jars has been delivered at Mechanic Falls, Me., where large quantities are used by H B. Phillips, of Auburn, Me., and by C G Turner, of Mechanic Falls, Me., in putting up honey for the retail trade. Others in the East, using these jars, can order from our branch at Mechanic Falls, Me., J B. Mason, manager.

PAPER BAGS FOR CANDIED HONEY.

We now have a supply of paraffine-coated bags, 5x 7½, right size for 2 lbs. of candied honey. These we can supply in small or large quantities at the same price as the folding cartons for 1 lb. sections listed in our catalog with the same extras for printing The postage on 100 bags would be 30 cts. Price of the bags plain is 60c per 100; 500 for $2 50; $4 50 per 1000. See page 25 of catalog for table of prices of cartons, and apply same prices to bags in same quantities and styles of printing.

FOUR-BEEWAY NO. 2 SECTIONS.

We have a surplus stock of No. 2 sections, 1⅞ and 2 inches wide, with four openings, which we should be glad to dispose of to those who can use them. If too wide we can reduce them to 1⅞. We are turning out sections at the rate of about half a million a week, and our visible supply of basswood is becoming exceedingly limited. We have a further supply engaged to keep us going full blast till the new stock is plenty dry enough to use, and trust the railroads will not fail us to get it here as fast as we need it Should we run out we have cream-colored lumber to fall back upon, which will make just as good sections as any we ever made, if no one would object to the off color.

SPECIAL CAPS FOR BOARDMAN FEEDERS.

We have just adopted a new cap for Mason jars, to use in the Boardman feeder It is on the pepper-box principle instead of the Hains principle heretofore used. We have a special tin screw without lining, which fits any standard Mason jar. This cap is perforated with 68 very fine holes. The jar filled with syrup, and fitted with this cap, is inverted and placed in the feeder-box, the hole in the top of the box being of such size as to hold the jar ¼ inch to ⅜ above the bottom. This allows the bees to sip the feed from the fine holes. With the old cap if the jar was tipped very much the feed would leak out; but with the new style it will not leak. We are able to offer these caps at just half the price the old ones are listed — 5 cents each; 40 cents for 10. By mail, 1 cent each extra.

SECOND-HAND FOUNDATION-MILLS.

We still have on hand a good assortment of second-hand foundation-mills, which we list as follows. Any one desiring samples from these mills, or further particulars, we shall be pleased to supply on application.

No. 014, 2x6, hex. cell. extra-thin super. Price $8 00.
No. 037, 2x6, hex cell, ex thin super, good. Price $10.
No. 2132, 2x6, hex. cell. thin super. Price $10.
No. 2227, 2x6, hex. cell, thin super. Price $10.
No. 2275, 2¼x6, hex. cell, ex. thin super. Price $10.
No. 050, 2½x12, round cell, medium. Price $12.
No. 014. 2x10 Pelham, nearly new. Price $6
No. 034. 2¼x12½, round cell, very old style, in fair condition. Price $10.
No. 051, 2x10, round cell, medium brood. Price $10.

Special Notices by A. I. Root.

WHITTON'S WHITE MAMMOTH POTATOES.

By a blunder the above new and valuable potato was omitted from our table of seed potatoes in our issue of March 15, although we did describe them. The price is $2.50 per barrel, $1.00 per bushel; 60c per half-bushel, and 35c per peck. Seconds at one-half the above prices. Red Triumphs same prices as above.

SHALLOTS.

Once more we have obtained about 4 bushels of this desirable kind of onions that have been so hard to get. Price $2 50 per bushel; 75c per peck, or 15c per quart. Quart by mail, 25c.

Convention Notices.

ANNOUNCEMENT.

Bee-keepers of Missouri will meet in convention at Moberly, in the Commercial Club rooms, at 2 o'clock p. m on the 22nd day of April, 1903, to organize a Missouri State Bee-keepers' Association. We expect to complete our organization on that day and have some bee-talks the next day following. Everybody is invited who is interested in bees and honey. Let us have a good turnout and a good time. Good hotel accommodations can be had at $1.00 and $2.00 a day. The Monitor Printing Company will tell you where the Commercial Club rooms are located.

W. T. CARY, Acting Secretary.
Wakenda, Mo., March 18.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To buy 50 colonies of bees for cash; must be cheap. F. B Cavanagh, Galt, Mich.

WANTED —To sell Sir Walter Raleigh seed potatoes, 60c bu. A. P. Lawrence, Hickory Corners, Mich.

WANTED.—Having facilities for rendering wax by steam, I will pay cash for old comb
N. L. Stevens, R D. 6, Moravia, N. Y.

WANTED.—To buy 200 colonies of bees in first-class condition and in standard hives.
H. F. Hagen, 625 High St., Denver, Col.

WANTED —To exchange or sell 50 colonies of Italian bees. for honey or cash.
David Daniel. Hawthorn; Pa.

WANTED.—To sell single comb White Leghorn eggs for hatching at $1.00 for 26; $3.00 per 100.
J. P. Watts, Kerrmoor, Pa.

WANTED.—Bee-keepers to send 10 cts. for sample paper bags for putting up extracted honey.
R. C. Aikin, Loveland, Colo.

WANTED.—A young man of good habits to assist in running apiaries. State age, experience, and wages required. F. B. Cavanagh, Galt, Mich.

WANTED —50 hives with supers complete in the flat. What have you?
J. I. Chenoweth, Albia, Iowa.

WANTED.—To sell or exchange a good hound coon and mink dog. A fine worker.
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WANTED.—To exchange 25 volumes of farm, bee, and fruit papers, for Barred P Rock eggs.
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WANTED.—Reliable farm hand, who understands all kinds of farm work. Must be temperate.
The Chas. McClave Co., New London, Ohio.

WANTED.—To exchange pure Barred Rock eggs, 15 for 1 tested queen or 2 untested; $1.50 value. Russel male. John C. Stewart, Hopkins, Mo.

WANTED.—In exchange for nursery stock, bee supplies of all kinds, including 30 extracting bodies complete with combs.
E. A Boal Co., Hinchman, Mich.

WANTED.—Reliable agents to sell standard stock, poultry, and insect powders. Also Go-Fly for spraying live stock. Write
The Chas. McClave Co., New London, Ohio.

WANTED —To sell 50 dovetailed 10 frame supers in flat for 4¼x4¼ plain sections, complete except sections Root's last year's goods, never opened. Will take $14 50 for the lot, f. o. b. Or will exchange for Langstroth extracting combs.
F. W. Lesser, Johnstown, N. Y.

WANTED.- To sell standard bred White Leghorn, Barred Plymouth Rock, and White Wyandotte eggs, for 75c per setting of 15 or will exchange for tested Italian queens.
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WANTED.—At once, 200 swarms bees. Will pay cash. Quirin, the Queen-breeder,
Parkertown, Ohio.

WANTED.—To sell sell two colonies of bees, also a full line of supplies for the bee business, very cheap. A. Wilson, Maywood, Ill.

WANTED.—To sell or let on shares, 36 colonies of bees in chaff hives, Hoffman frames.
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WANTED.—To sell or exchange 25 Simplicity hives, new and complete, and 100 Simplicity bodies, practically new. Write for prices.
A. Y. Baldwin, DeKalb, Illinois.

WANTED —To exchange for cash or offers, one two-frame Cowan extractor, used but two seasons in a small apiary; also one Bingham knife.
I. A Wooll, Elsie, Mich.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange bees for foot-power saw. Sixty colonies of bees in fine condition for sale; also two fine improved farms for sale.
F L. Wright, Webberville, R F. D. 2, Mich.

WANTED.—To exchange Encyclopædia Britannica, for any thing that I can use in bee supplies; 26 volumes, index, and guide; good condition, 1896.
Rufus Christian, Meldrim, Ga.

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WANTED.—To sell seed potatoes at 65 cts. per bush. Varieties, Carman No. 3, Sir Walter Raleigh, Seneca Beauty, Early Ohio, Rural No. 1 and No. 3.
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WANTED.—Man, either married or single, to work on farm by month or year. Must not use tobacco, drink or swear. Give references, state age and experience.
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WANTED.—A position by a single German, of good habits, has 15 years' experience with bees; also gardening. fruit, stock, and dairy farming. Can give good reference State wages and length of time wanted. Address F. O. G., Granite, Md.

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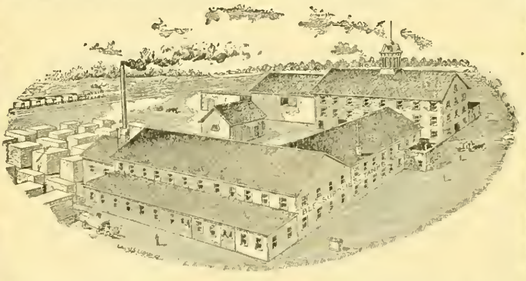

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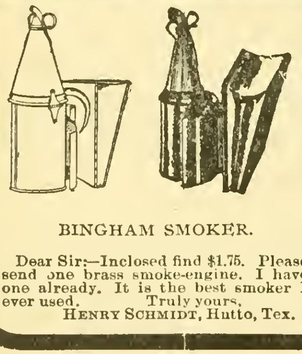

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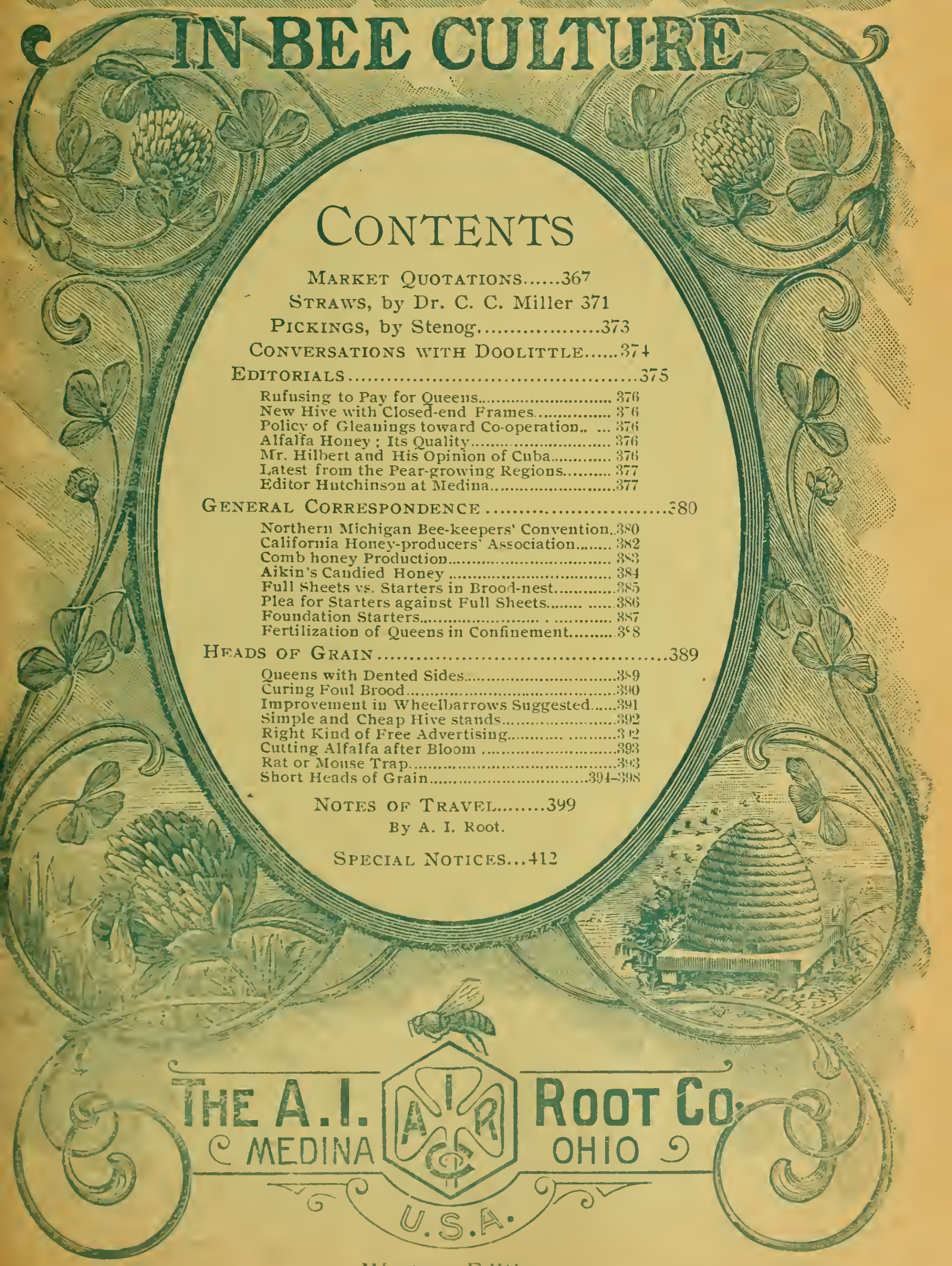
T. F. Bingham, Farwell, Michigan.

Volume XXXI MAY 1 1903 Number 9

GLEANINGS IN BEE CULTURE



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Carl F. Buck, Augusta, Kansas.

Butler County.

Announcement!

We desire to call the attention of all bee-keepers in Washington, British Columbia, and adjacent territory, that we're now the Northwestern agents for

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and are prepared to furnish from stock here, and at other Washington points, any thing required by bee-keepers. Send your specifications early. If we do not have the goods wanted this will enable us to get them in our next carload. Catalogs free.

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FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The comb-honey market is a little better as the big stock is almost all exhausted; prices are better. Fancy water white brings 15@16. The market for extracted has not changed whatever, and prices are as follows: Amber, in barrels, 5¼@5½c, in cans, 6@6½; white clover, 8@8½. Beeswax, 28@30.

C. H W WEBER,
April 20. 2146-8 Central Ave., Cincinnati, Ohio.

DENVER.—We quote No. 1 white comb honey, $3 00 per case of 24 sections. No. 2 comb honey, $2.50@$2.75. Choice white extracted alfalfa honey, 7½@8⅓ per lb. Beeswax wanted at 22@28c, according to color and cleanliness.

COLORADO HONEY-PRODUCERS' ASS'N,
April 21. 1440 Market St., Denver, Col.

SAN FRANCISCO.—Comb honey nominal. Extracted, water-white, 7; light amber, 6½; dark amber, 5. Beeswax, 28.

April 15. E. B. SCHAEFFLE, Murphys, Cal.

MILWAUKEE.—The receipts of honey since our last have been small. The supply is not large of extracted, yet enough for the demand while fancy comb is not enough for the demand, and of common grades enough, and would prefer less. We advise grading up and producing better quality, and then better values can be demanded. We quote fancy 1-lb. sections, 16@17; No. 1, 14@16; amber and inferior, nominal 8@12½; extracted in bbls., kegs, and cans, white, 7@8c; dark, 6@7; beeswax, 28@30 A. V. BISHOP & Co.

April 20. 119 Buffalo St., Milwaukee, Wis.

CHICAGO.—Little change from last quotation; sales are few and prices not firm. No. 1 to fancy white, 15@16; other grades range from 10@14; extracted, white, 6@7, amber, 5½@6. Beeswax selling on arrival at 32c.

R. A. BURNETT & Co.,
April 20. 199 South Water St., Chicago, Ill.

ALBANY.—Honey market quiet with no stock on hand, and light receipts. Demand for light comb, 15; mixed, 14; dark, 13; extracted, light, 6½@7; mixed, 6; dark, 6. Beeswax, 30@32.

MACDOUGAL & Co.,
April 25. 375 Broadway, Albany, N. Y.

TOLEDO.—While the market is quiet on honey, we are getting for fancy white comb honey, 18c; No. 1, 17; No. 2, 16; no demand for dark. Extracted sells in barrels, white clover, 8c; amber, 7. Beeswax 27@29.

GRIGGS BROTHERS,
April 18. 214 Jackson Ave., Toledo, Ohio.

NEW YORK.—The demand for comb honey is only fair, with abundant supply. We quote fancy, 14@15; No. 1, white, 10@13; buckwheat, 10x12. Extracted, California, 6½@8. Beeswax firm at 32.

FRANCIS H. LEGGETT & Co.,
April 20. Franklin and Varick Sts., New York.

CINCINNATI.—Little demand for comb honey at present; fancy white sells at 15@16c in a small way. We quote amber extracted at 5½@6½; white clover, 8@9. Sales not as lively as expected this season of year.

THE FRED W. MUTH CO.,
April 27. Front & Walnut Sts., Cincinnati, O.

TORONTO.—Honey market not very brisk, maple syrup being a rival at this season. Some attempt has been made lately to develop the English trade; agents for Liverpool firms have been in Toronto trying to arrange for large shipments of No. 1 clover honey in glass. Only the very finest quality would do for this trade. Present prices unchanged. Extracted, No 1, 8@10c; dark, 6@7; comb, No. 1, 15@18· No. 2, 12@14. Not much No. 1 offered. Lots of extracted yet in sight; demand light. Beeswax, 28@32.

E. GRAINGER & Co.,
April 14. Toronto, Can.

DETROIT.—The demand for comb honey is light, and prices have a downward tendency. Prices are as follows: Fancy comb honey, 15½@16; No. 1 dark, 12@14. Beeswax, 29@31. M. H. HUNT & SON,

April 10. Bell Branch, Mich.

KANSAS CITY—The supply of comb honey is about exhausted. The demand good. We quote as follows: fancy white comb, 24 sections, $3.50; No. 1 white comb, 24 sections, $3.40; No. 2 white and amber, $3 00@$3.25; extracted, white, per lb., 6@6½; amber, 5½. Beeswax, 25@30.

C. C. CLEMONS & Co.,
April 20. 306 Grand Ave., Kansas City, Mo.

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BACH, BECKER & Co., Chicago, Ill.

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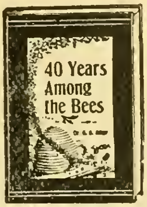

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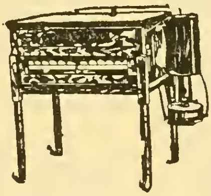

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Gus. Dittmer, - Augusta, Wisconsin.

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GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

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Stray Straws

By Dr. C. C. Miller.

Bee-master Dathe asserts in *Centralblatt* that diarrhea is almost always the result of need of water; no fear of diarrhea if bees have the necessary water in the fall. I wonder if that can be possible.

Arthur C. Miller is stirring up the animals again. This time it's humidity—he insists in *Am. Bee-keeper* that moisture is of exceeding importance in queen-rearing. "Who said it wasn't?" Aye, but who said it was?

W. J. Davis offers, in *Am. Bee Journal*, to mail 20 or 30 "umbilical cords" for a stamp to pay postage. I wouldn't waste a good stamp in that way; they would be too much dried on the journey to be properly attached to the young queens.

"Put yourself in his place." That resolution, p. 322, shows that York State bee-keepers want themselves known as the producers of honey. So do I. So do we all. But if I were buying and selling, I'd want my name known as the man from whom grocers could always count on getting good honey, whether comb or extracted. "Put yourself in his place."

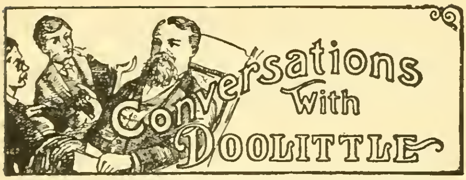
I don't believe there is any case on record in which it was clearly proven that the killing of one bee caused a cessation of the laying-worker business. And I think there never was an analysis made without showing that a large proportion of the bees in a laying-worker colony contained eggs. [I believe you to be in error; and if I can get the time I will try to show you the record or records.—Ed.]

The common bee does not exist in Colorado—only Italians, and a very few Carniolans. So says C. P. Dadant, in *Revue Internationale*. [I do not remember seeing any blacks in Colorado. I think our friends will be wise if they never import them. But, my, oh my! there are plenty of them in California. The California yards are noted for their cross bees, because of the hybrids and blacks; at least I never saw their equal for stinging unless it was the Coggshall bees in New York, which were also hybrid.—Ed.]

W. Z. Hutchinson, editor and foul-brood inspector, while on a tour of inspection has his editorial office in the cars, and says, "I write as well on the train as anywhere." After seeing his handwriting a good many times, I can easily believe that the jiggling of the cars would make no difference in it. But the jiggle all works out in the printing, however, and a lot of sense remains in it. [W. Z. H. is a good editorial writer; and the more of W. Z. there is in the *Review*, the better I like it. He is a good reviewer and a good editorial sifter.—Ed.]

The Youth's Companion has commenced a serial story about some young bee-keepers' migratory performances. It opens up in an interesting manner, and I happen to know that the interest keeps up throughout the eight numbers. [I have neither seen nor read the story; but members of my family, and others with whom I have talked, speak in high praise of it. Such articles do much to educate the general public to the uses of honey—how it is produced, etc. If we can get the consuming class to know that extracted honey is honey out of the comb, we shall have accomplished much for the industry.—Ed.]

A. C. Miller says in *Review* that he is beginning to believe that bees winter well in chaff hives in spite of the packing rather than on account of it. He prefers black tarred paper tied about a common hive. [Our friend Mr. Miller will have to change his opinion, I am thinking, after he has tested the paper as carefully as we have. I once had the idea that paper tied around a common hive would winter bees as well as a chaff-packed hive. We fixed up a number of hives in that manner, setting a



EXTRACTED HONEY AND INCREASE, ETC.

"Mr. Doolittle, I want to ask you some questions, and have a little talk with you."

"Very well, Mr. Brown. What would you like to know?"

"Which is the better plan when working an apiary for extracted honey—to make the increase by natural swarming or by division? If by division, when is the best time to do it in latitude about 41, white clover being the main plant giving surplus?"

"You are putting the questions in pretty thick, aren't you? We will consider the swarming part first. Should we desire, never so badly, increase by natural swarming, it would be very little we should get if the colonies were worked to the best advantage for extracted honey."

"Why so?"

"Because a good yield of extracted honey is obtained only by providing the colony with an extra set, or more, of empty combs, putting the same in upper stories at the beginning of the honey-flow, or as soon as the bees have increased sufficiently to receive them without any detriment to their building up the most quickly. Bees do not swarm till the hive is well populated, and honey coming in from the fields; hence if we put on combs as above, and we must to secure the best results in extracted honey, these combs go on before any preparation for swarming is made. If I remember correctly, Editor E. R. Root once said, 'Plenty of empty combs is the best preventive for swarming,' and no truer saying was ever uttered; and by fixing the bees as we are obliged to, to secure the best results, we very nearly, if not quite, prevent all increase of a natural kind."

"Has this been your experience? I did not think it would be thus."

"In all of my experience with the extractor I have never had a single colony cast a swarm before the honey harvest was beginning to wane; and not ten per cent of the colonies thus worked ever offered to swarm at all. Therefore you will see, if you wish increase, it must be done in some way other than natural swarming, or else you will have to sacrifice your honey crop quite largely by not putting on the combs till the colonies have swarmed."

"Well, I do not wish to sacrifice my crop of honey more than I can help."

"This is as I thought it would be; therefore we have increase by division, where increase is wished, as the only way when working for extracted honey."

"That seems clear the way you put the matter. So the next thing to talk of is when that division is to be made."

"Very many of our practical apiarists tell us that, where we make increase by division, this should be done a little before the honey harvest, or at its commencement, and this is correct when working for comb-honey; but I fail to see why it need be thus where only a moderate increase is desired when one is working for extracted honey only."

"What is the argument they use?"

"The claim is made that, after division, we shall have two queens laying instead of one, and in this there is a gain."

"Can you see any gain in that?"

"No. And such reasoning is mysterious to me; for the bees which hatch from those eggs laid by the two queens, after the division, can never become honey-gatherers in the white-clover harvest, unless said harvest is much more prolonged than it ever is in this locality; so the bees from the eggs of the extra queen will become only consumers, without adding one iota to our crop of honey. Yea, more: Instead of adding to the crop of honey it will lessen the crop by just the amount that it will take to feed and nurse the brood and the young bees after emerging, which is a clear loss, instead of a gain, it appears to me."

"But, may it not be possible that the two parts would store more separately than together?"

"No. All bee-keepers whom I ever heard express themselves in this matter admit that one *strong* colony will store far more honey when kept together, if not having the swarming fever, than the same colony would if divided and placed in two separate hives, thus making two weak colonies of it. Hence, by dividing at the commencement of the harvest, or a little before, we have two weak colonies to do the gathering, up to about the time the harvest closes, instead of the one very strong one; while after-results from fall flowers are no better for our having increased at this time. Therefore I think it the better way to work all colonies without any increase till very near or just at the close of the harvest, when I go to work and make what increase I wish by dividing as many of the best colonies as I wish increase."

"What do you do with any swarms which may issue?"

"If any happen to swarm near the close of the honey harvest, or at any time during the latter part of the same, I accept their increase as far as they do so, thus lessening the number desired, according to the number which swarm."

"This appears as right to me, and I thank you for the instruction you have given me. But I must go now, as I left my son out holding the horses. Good by."

"Hello, Doolittle! I met a Brown man out here at the gate, and here comes another one; but this Brown is from Ohio."

"Glad to welcome you, Mr. Ohio Brown. Did you come to talk on increase? This seems to be the theme of late that nearly all wish to know about."

"No, I came to talk with you a little regarding what you wrote in GLEANINGS for Sept. 15, 1902, where you say, on page 756, 'Open the hives and take out some frames to make the bees go into the section.' "

"Very well; what would you like to know further about this matter?"

"I want to ask when is the proper time to put the frames back into the hives?"

"I was there speaking of ways of compelling, as it were, bees to build worker comb, and we took away five of the frames, after the bees had got started to building worker comb nicely in the other five. As soon as the five left are filled down to the bottom-bar, and clear out to the corners, then it is time to fill out the hive with frames filled with foundation; for, if we use frames at this time having only starters in them, we shall most surely get them filled with drone comb. If it is preferred to get all the honey possible in the sections, and feed for winter, if necessary, then these last five frames need not be put in till near the close of the honey harvest."

"I understand now. But another question:"

"Very well; I will do the best I can to help you. What is it?"

"In the Oct. 15th number, same year, you speak of the bees building brace-comb, and give reasons, but none of them describe my trouble."

"Wherein is your trouble different from those I spoke of in that conversation?"

"In one of my hives the bees made some fancy comb honey. After they got a few pounds in the center of the super all nicely capped, they built brace-comb in the center of nearly every pound, bracing the comb to the fences. I should like to know the cause, and a way to prevent it, if there is any way, for they spoil nearly every pound so they are not salable."

"From the way you tell this, I judge that there was only one colony which worked thus. This being the case, and all other things being perfect, I would say that the trouble might lie with that particular variety of bees; for some varieties of bees show characteristics different from others which are distinctly their own. This being the case, I should kill such a queen and introduce one from a strain of bees which show no disposition to build brace-combs thus. That some colonies and varieties do brace heavier than others, I am well aware, and I have superseded several queens just on account of their bees being given to this habit of putting in bits of comb all about the hive, and attached to the combs in a disagreeable manner."

"But suppose that several or all of my colonies should show or give the same results as did this one the past year, then what would you advise?"

"I would advise you to examine carefully the attachments where the comb came in contact with the fences, for it is possible that from some imperfection of the material used in making the fences that the slats, or little fence-boards used, warp slightly, after the combs are built, so that the edges of a few come nearer the honey than when it was sealed over. In which case the bees would either gnaw the sealing off the comb so as to give them room to pass at that point, or else, if comb-building was still going on, put out braces of wax to hold that portion of the fence in place, and steady the comb. I have had one or two complaints that the bees built brace-combs so as to injure section honey, very much more largely where the fences were used than they did with the old-style separator; but I hardly think that such would be the tendency. Will the readers of GLEANINGS tell us what they know in this matter?"

Editorial
By E.R. Root.

BEES appear to have wintered well; and if they get through the month of April without too much setback, all will be well.

THERE seems to be an abundance of white clover. The frequent and copious rains during March and April have given the plants a good growth.

MARCH AND APRIL.

THE month of April has not been cold but cool. The exceptionally warm weather during the middle of March has had its offset in April. In our locality, the buds on the trees are just about where they were a month ago. Bees have not suffered from spring dwindling, probably for the reason that a large amount of brood was reared and hatched in March. This force of young vigorous life keeps up the strength of the colonies undoubtedly; but for this we would expect the usual spring dwindling.

ALFALFA HONEY; ITS QUALITY, ETC.

MR. M. S. KRAMER, a neighbor of ours, a bee-keeper, sells honey in the great city of Cleveland by house-to-house canvass. He has, this past winter, disposed of a good many tons. He carries it on the electric cars, in fruit-cans, taking as much as he can manage in two baskets. When he sells out he comes back for another load, etc. In answer to the question as to what kind of honey suits most people best, he replied that there was nothing that suited generally like pure white clover; but as he was unable to get enough of this he found the next best thing was alfalfa. I presume others have already learned that the electric cars furnish a cheap and easy method of transportation at very much less expense than to take a horse and buggy.

MR. JAMES HILBERT AND HIS OPINION OF CUBA.

SOME days ago we had the pleasure of a visit from Mr. James Hilbert, of Bingham, Mich.—A. I. R.'s neighbor at his northern home. Mr. H. has just returned from Cuba, where he has been investing in land and bees. He expressed himself as being very much pleased with the country—its possibilities and development. It is his intention to run his bees up in Northern Michigan during the summer, then during the cold winter months, when his Michigan bees are asleep, he will go to Cuba and work his Cuban bees.

DEATH OF DR. ELISHA GALLUP.

ON the 5th of last April, Dr. Elisha Gallup died at his home in California at the age of 83 years. He was one of the old veterans—the Gamaliel at whose feet Mr. Doolittle sat when he himself was learning his A B C's. Mr. Doolittle has often referred to the doctor, and in recognition of his gratitude to him dedicated his book, "Scientific Queen-rearing," to him. Mr. Gallup was the inventor of the hive and frame bearing his name. He was a prolific writer during the early 60's and 70's, and in later years for the *American Bee Journal*. The period of time included in the last twelve months has taken away more than its share of the veterans—six in all.

CALIFORNIA'S GOOD YEAR AND THE NATIONAL.

THE bee-keepers of California have been getting more rain; and so far as I know the prospects seem to be generally good. It seems to be very opportune that the *very year* when the National goes to Southern California that it should be a good year. If it were to be one of their numerous "off-years" I am afraid there would not be a very large local attendance. But present indications speak for a grand meeting. Remember the date, Aug. 18th to 20th, at Los Angeles.

Later.—There seems to be a move on foot on the part of some of the eastern bee-keepers to go in a party to Los Angeles over the Santa Fe route, stopping just long enough to see the Grand Canyon in Arizona. So far as I know, Editors Hutchinson and York and Mrs. York will go over the Santa Fe route. Dr. Miller and myself will probably go the same way. The plan seems to be to engage a tourist sleeper and get up a party of bee-keepers. Particulars and announcements will be given later.

MASSIE'S METHOD OF INTRODUCING.

IN the review of Mr. Massie's book, in another column, I find I omitted to make mention of his method of introducing queens, which seems to have some merit. In brief it is this: He takes two frames of hatching brood, and puts them in an upper story, the same being set on top of the hive to which the queen is to be introduced, and separated from it by a thin board. The queen is let loose on the hatching bees, and the upper story closed up. A few days after, the old queen in the lower story may be killed or removed, and the bees can be shaken off the frames, which are then put in the upper story. A single sheet of newspaper through which are pricked a few pinholes is then slipped between the upper and lower hives. The bees going in below find themselves queenless and broodless, and immediately set up a cry for a queen. In a few hours they gnaw away the paper and work up into the upper story—a few at a time at first—getting on to their own brood. Here they find a queen laying normally; and, probably having the same scent as the combs, she is immediately accepted. Mr. Massie says the plan is sure.

LATEST FROM THE PEAR-GROWING REGIONS; TRYING TO POISON THE BEES.

SOME time ago Mr. Charles Downing, of Armon, near Hanford, Cal., a man who has one of those mammoth pear-orchards, published a notice that, having suffered serious damage through the visitation of the bees to his orchards, he proposed to adopt as effective means as possible to prevent the destruction of the coming crop; and he warned all bee-keepers to keep their bees out of his orchards. This simply meant that he would put out poisoned sweets to kill off the bees. Information has reached us that the poison was set out in accordance with the notice; but the bees, instead of committing suicide, were visiting the blossoms as before, and no harm was being done.

I saw Mr. Downing myself, when in California, and regarded him as a progressive fruit-man. I think it was he who said that the pear-men were largely to blame because they did not prune their trees, cutting out the blight. I am led to wonder why he does not adopt the effective measure proposed by Prof. Waite, of pruning out all the diseased members of the trees.

REFUSING TO PAY FOR QUEENS.

ON the 13th of last August, Mr. Oakey Hayes, of Little, Taylor Co., W. Va., ordered of Mr. G. Routzahn, of Menallen, Pa., six untested red-clover queens, inclosing an express money order for $3.00; but as Menallen is not an express office Mr. Routzahn returned the order, requesting Mr. Hayes to send him paper that he could use. To this no response was received. Mr. Routzahn finally referred the matter to us after he had written to Mr. Hayes a number of times without getting any reply. We wrote Mr. Hayes, asking for an explanation. After some delay he wrote that the queens he received were unsatisfactory; that three of them were drone-layers, and the other one was dead. Accepting this as a true statement of fact, why should he not have notified Mr. Routzahn at the end of 30 days, instead of offering, weeks afterward, the complaint that the queens were worthless, and therefore he would not pay for them? The money order was returned almost immediately. *At that time Mr. Hayes had no means of knowing whether they were drone-layers or not;* and the excuse offered for not paying does not seem valid if we are correctly informed of the facts.

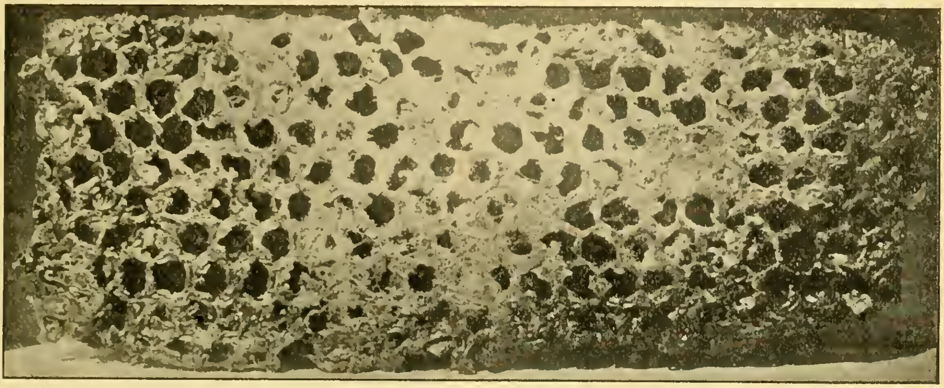
We notified Mr. Hayes about a month ago that we would place the facts of the correspondence before our readers, and that if he had any thing further to offer to let us hear from him; but to this we have had no reply. The rule is, if queens are defective give due notice of the fact within ten days in the case of untested queens, and thirty in the case of tested.

PICKLED BROOD; HOW TO DISTINGUISH IT FROM BLACK AND FOUL BROOD.

Some time ago Dr. Wm. R. Howard, the expert who diagnosed and named pickled brood and black brood, sent a photo of a fair sample of the first mentioned. We have had the same reproduced in half-tone because we consider it a typical specimen of a comb diseased or affected with the white mold or pickled brood.

In some of the stages, pickled brood much resembles black brood. It is not ropy, like foul brood, nor does it have the characteristic foul odor so much resembling that of the cabinet-maker's glue-pot. Like black brood it is not gluey, and the dead larva turns to yellow, then to a dark brown, and sometimes to a black. The dead matter in black brood is of a jelly-like consistency — only very slightly ropy; that in pickled brood, very watery and thin. In some of the stages I have not been able to detect the difference between black and pickled brood; but when a comb containing dead larvæ is covered with a white mold, then I am very sure it is pickled brood. If a comb thus diseased is placed in a sterilized chamber, in a rather warm temperature, the comb will mold. Indeed, I have had specimens of it mold when confined in an ordinary paper box.

Pickled brood is not to be particularly feared. The disease will linger in a hive for some time. It does not spread from colony to colony, but will occasionally break out from season to season in the same hive. Shaking the bees on frames of foundation will effect a cure. And that leads me to say that, *if you are at all in doubt*, this same treatment is a cure for black and foul brood. Better err on the safe side.



A TYPICAL SPECIMEN OF COMB AFFECTED WITH PICKLED BROOD.

A NEW HIVE WITH CLOSED-END FRAMES.

A booklet entitled "The Queen-bee and the Palace she should Occupy," by T. K. Massie, Tophet, W. Va., is just out. While the book relates to queen-rearing, it seems to be more a description of the hive used and recommended by Mr. Massie—a double-brood-chamber cubical hive, using closed-end frames 7¼ inches deep. In many respects it is similar to the Danzenbaker, which seems to have suggested some features of this. It makes use of plain sections and fences, and tall sections, sealed covers, and a telescoping cap. Closed-end frames are close-fitting, and supported by nails in ordinary hive-rabbets. This style of frame I found in use by J. Y. Tunicliff, in New York, in 1890. I was greatly pleased with it at the time, and started to introduce it. It was illustrated, and still shows in our A B C book, in the late editions. After trying it for a season in several hives I abandoned it for the Hoffman because I found that a close fitting closed-end frame in a deep brood-chamber was liable to cause trouble by swelling, thus making the frames so they could not be removed. A close-fitting frame, however, *might* be made to work provided it were *loose* enough. There should be a play of fully $\frac{3}{16}$ inch.

Such a frame was in use before Mr. Tunicliff tried it—I think by Mr. Quinby himself.

Mr. Massie does not have very much patience with those bee-keepers who stick in the old ruts, clinging to standard hives and to standard goods: and he pays his respects to such people in somewhat emphatic language. The price of the book is 25 cents. It can be obtained of T. K. Massie, as above, or the Kretchmer Mfg. Co., Red Oak, Iowa.

THE POLICY OF GLEANINGS TOWARD CO-OPERATION DEFINED.

I AM surprised to notice that I am credited by one of the editorial writers in the *Progressive Bee-keeper* with being opposed to co-operation. Possibly such an idea may be gathered from a single quotation, if it is taken separate and apart from all the other things I have said on this subject; but is that a fair way to set forth one's opinion or position?

I have been heartily in favor of co-operation, and have referred editorially a number of times to the splendid organization in Colorado. In this issue it is with no little satisfaction that I note that California is in a fair way to have a successful State organization for the marketing of its crops of honey. A few wild and visionary schemes have been proposed; and from a business point of view, if an attempt were made to carry them into effect, failure only could be met, with the result that the general idea of co-operation would receive a blow from which it would not soon recover.

For fear that some may not understand our position, I wish to say this: That we are heartily in favor of co-operation, and will do all we can to further and help on *any plan that is business-like and practicable in its general scope.* But the talk about a national co-operative body to sell honey would be a little premature, just now, according to my way of thinking. When we can get four or five State organizations at work effectively, we shall then stand a better chance of launching forth an exchange that will be national in character. Let us go slow; but be sure that what we do undertake would make a sure go.

GLEANINGS opposed to organization? I know of no reason why it should be. What is helpful to the bee-keepers at large would be immensely beneficial to the publishers and manufacturers. Certainly the present ruinous price-cutting and lack of co-operation is damaging and demoralizing to every interest connected with the bee-keeping industry.

THE REVIEW EDITOR AT MEDINA: A VISIT WITH MR. CHALON FOWLS, OF OBERLIN; HOW TO MAKE RED BEES OUT OF YELLOW ONES; THAT HORSE THAT WAS SO BADLY STUNG.

MR. W. Z. HUTCHINSON, of the *Review*, is foul-brood inspector for Michigan. Happening to be in the southeast corner of that State on one of his inspection-tours he decided to go a little further and visit some of the bee-keepers in Northern Ohio. We had the pleasure of a visit from him on the 23d and 24th of April. Although he is a little past 50, yet he is well preserved for his age. Tall, straight as an arrow, he does not look to be over 40. Those of our people who had never seen him remarked that they would have known him at once by his photograph.

Of course, I took W. Z. out on my auto. A number of times I ran the machine up to the point where I thought I could make him flinch. When I asked him if he could stand it at a little higher speed, he laughingly remarked that he could stand it if *I* could. Well, to be frank about it I did not dare to go much above 15 miles an hour on those country roads. As it was, we were jounced or "shook" like beans in a box. What if I should lose my grip or head, or run into something? What if I could not stop the thing? What if I should run into a ditch, and the thousand-pound automobile should be piled up on us two editors? We solemnly agreed that *that* wouldn't be desirable or comfortable; and I slowed down.

I proposed taking our friend to Oberlin and Norwalk in the machine to see Mr. Fowls at the former place and Mr. Boardman at the latter; but the condition of our Ohio roads, and the general appearance of the sky, made it seem inadvisable. To prolong our "unconventional convention" I finally decided to go with W. Z. H. on the street-car, at least part way. I went as far as Oberlin, where Mr. Fowls helped make up our convention. It will be remembered that he is the extracted-honey man who makes a specialty of bottling his honey, and selling the same at retail. He has now four outyards, and is one of the few who make bee-keeping a specialty. He remarked, as he looked toward W. Z. with a twinkle, that he was going to keep "more bees;" and instead of producing extracted honey only, and carrying some of it over from season to season, he proposed dividing his crop into fancy comb and fancy bottled goods.

Our readers will recall that, some three or four years ago, Mr. Fowls had quite an experience with a horse that was nearly stung to death, and that he himself escaped very narrowly. He had tied the "old mare," as he said, back of the yard near the fence. On the other side of this fence there was a couple of nuclei which he had forgotten all about. During the night the horse in some way broke through the fence and upset one of the hives. In the early morning Mr. Fowls heard a peculiar racket. Suspecting what the trouble was, he dressed and rushed out to the horse, barefooted and bareheaded. My, oh my! how the bees pitched at him! He returned, however, in inglorious defeat. Remembering that that seemed cowardly, and that the poor horse was tied with a rope, he rushed back, this time in spite of the bees and stings, and untied the rope. But the mischief had been done. Almost screaming with pain he called for hot water, which was applied to his face and hands, to his great relief. In the mean time the horse had run from the yard, and was raring and throwing itself in fearful agony. The neighbors rushed to her assistance. Doctors were called. Some advised cold water, and some called for water with soda. But Mr. Fowls insisted on cloths wrung out of *boiling* water. The horse was held down at her head while the cloths were applied. He had some fears, he said, that the cloths *might* cook the skin, but they did not. The time required in wringing and swinging them in the open air probably reduced the temperature so that they would not do that. Hot cloths were applied all over the animal except the head. He never thought of applying them there also; because, in order to hold the animal down on the ground, it was necessary for some one to sit on the head. Now mark this: The *only places* that swelled at all on the horse were on the head, where the hot cloths had *not* been applied. The eyes of the poor beast were swollen shut. The lips were so badly swollen that the mouth looked like that of a rhinoceros. The ears were fearfully puffed up. So badly swollen was the nose, that *actually*, Mrs. Fowls said, the poor animal could not get her mouth in a common water-pail. I remarked that I should have liked to be there to take a photo of her at the time. Although her appearance was laughable in the extreme, Mr. Fowls said he did not think he would be *mean* enough to let me snap the instrument on her and show her to our readers, even if *I* could have the heart to do it.

Mr. Hutchinson and I looked at the horse, and the only marks that could be seen at this time on her were some bare spots on her flanks and legs. But she is afraid of bees, and always will be; and for some time afterward Mr. Fowls said it was difficult to get her near the yard where she had been so fearfully stung. She remembers it yet when she hears the hum of bees around her ears.

A JOKE ON MR. FOWLS; RED BEES; A HINT TO EXHIBITORS.

Mr. Fowls related one incident that was somewhat amusing. In visiting one of his outyards he found one hive where the bees were red instead of yellow. They were beautiful to look upon. He caged a few, and was going to send them to one of the aforesaid editors, when, lo, the next morning the bands had turned back to their original yellow. He was nonplused. A few days after, he went back to the yard and found more red bees. Finally his thirteen or fourteen year-old boy said, "Why, pa, they are red because they have been eating red candy syrup." His father protested that that was impossible. "Here is a row," said the boy, pointing, "to which you fed red candy syrup, and here is a row where you didn't." Examination showed, sure enough, that the red-candy row showed red bees and red combs, while the other row showed bees of normal color.

It seems Mr. Fowls had had an opportunity to buy some candy from a candy-maker at a low price. It was made of granulated syrup, and he decided to use it. I think it was red peppermint. At all events, it was this red stuff that gave the candy or syrup its color. When the bees were filled with this red stuff, their bands on the abdomen, instead of showing yellow, the color of the fluids in their bodies, would show pink or red.

Here is a valuable trick for exhibitors at fairs and expositions. They can color these bands from green to red so long as the coloring element is not poisonous. All one would have to do would be to feed his bees a colored syrup, using, in the case of red or purple, aniline. A very little of it would give a rich color like ink. Now arrange to put the bees on a window, or so the light would shine through them after they have been fed. I imagine it would be quite a drawing card, especially if one could get a blue and a green. Ordinary bluing would answer for the blue, aniline for the red or purple; and green—well, I am not enough of a chemist to suggest. Certainly Paris green could not be used.

Now to return to our unconventional convention. We talked over tall sections. Mr. Fowls' verdict was that Ideal sections were not ideal; but he was favorably impressed by the 4×5.

As for shaking swarms, he had practiced it for years, but never supposed it could be applied to the whole yard to advantage. He expects, this coming summer, to shake all the bees at his outyards, as this would obviate the necessity of having an attendant to look after them. He desired to move one yard a few feet; and he wondered if the shaking would not enable him to make the shift. Mr. Hutchinson thought it would. If he tries the experiment I hope he will let the bee-keeping world know about it.

I did not go on to Mr. Boardman's with Mr. Hutchinson, concluding I would see our friend at a later time when the roads permit me to go with the automobile. By the way, A. I. R. expects to go with me on my first auto trip. He appears to enjoy the fun of this horseless kind of riding as much as your humble servant, and that is saying a good deal. Oh the roads! They are horrible now—deep ruts and great hubs, with occasionally here and there a shallow mud-hole.

And that reminds me that I have been stuck in the mud twice, and had to go through the humiliating experience of getting an old farm-horse to help pull me out. Not being familiar with the handling of the machine I backed too far down into the ditch into some soft mud. The traction-wheels were in the mud, and, of course, when I applied the power they simply slipped around and around, and the machine was powerless to extricate itself. I am a little more careful how I back, especially when I can not see where I am going.

REPORT OF NORTHERN MICHIGAN BEE-KEEPERS' CONVENTION.

Held at Bellaire, Mich., March 25 and 26.

BY A. I. ROOT.

I returned from Cuba just as our issue for March 15 was getting ready for press; and just as the form was being made ready, my eye caught sight of the convention notice on page 265. Well, Mrs. Root and I hurried up our arrangements for our Michigan trip so as to take in this convention; and I am glad to tell you it was not only one of *my* happy surprises, but one of *our* happy surprises, for I think Mrs. Root enjoyed it as much as I did. Bellaire is situated on the Pere Marquette railway, and the surroundings are very much like ours at Bingham. It is also located on a string of little lakes that are connected together so that an excursion steamer runs regularly back and forth down them during all the summer months. I do not know how many miles this excursion steamer embraces; but I think it must be toward 100; and all the way along there are little lakes connected by narrow channels. In consequence, there is any amount of water power from the "babbling brooks" that come tumbling down the great hills. Bellaire is not only well lighted by electricity generated by water power, but there are several large manufactories where they make clothes-pins, wooden bowls, and a great variety of woodenware. The price at which these household commodities are sold is simply astonishing. Why, they told us of a woman who was buying clothes-pins by the gross for kindling-wood. She said it was not only the *best* but the *cheapest* kindling that she could get hold of as she was situated.

The attendance at the convention was not large; but what was lacking in numbers was made up in quality. My good friend Hilton was president as usual; and with W. Z. H., of the *Review*, right at his elbow, taking down notes, they not only made a good-looking span, but a very efficient team in running a convention successfully. W. Z. H. will probably give a complete report through the *Review*, and so I will simply go over briefly the subjects discussed.

Friend Berg, the plum-man I wrote up last fall, was on hand, and he was just as good-natured and full of fun as ever—perhaps a little more so. I rather think his big crop of fruit and honey, especially the plums, helped to make him good-natured. He said there was a woman in his locality who was getting double the amount of honey he secured, by throwing it out before the bees had time to cap it over. In fact, he said some of her honey was but little more than sweetened water. But she got double the number of gallons because the water had not yet evaporated out of it. She was selling water by the pound at the price of honey. When I arose and asked how it was that it did not sour on her hands or on the hands of her customers, he replied, "Oh! this woman is sharp. She is sharper and brighter than we men-folks, in a great many ways. She sells all her honey to a confectioner in Traverse City, and he boils it all up into candy before it has had time to sour. He does a thriving business in making honey candy, and she does a thriving business in giving him fresh honey right from the hives every morning."

Of course, there was a big laugh at this. But, dear friends, here is a very valuable point. W. S. Hart, of Hawks Park, Fla., and some bee-keepers in California, have made machines to evaporate this raw thin honey; but I believe they have been mostly dropped. Now, the confectioners and candy-makers, men of our large cities, have all the "rigging" to take this raw honey and make it into honey-cakes or honey-candy. I did not learn the lady's name who started this new industry; but is it not possible that we bee-keepers may in time decide we owe her a vote of thanks?

PREVENTION OF SWARMING.

This whole subject was discussed as usual; but I got a new idea, or one that is new to me. We all agree that, by the use of the extractor, swarming can be discouraged much better than where we work for comb honey. If you give the bees plenty of room to store as near the brood-nest as possible, or, better still, right in the heart of the brood-nest, you will discourage swarming. Well, now, instead of using the extractor in throwing the honey out of the combs in the brood-nest, suppose we have half-depth stories and half-depth frames. In this way we can get a case of sections, either empty (or, where the bees have partly drawn out and filled the combs), not only close to the brood-nest, but we can get it right *in* the brood-nest. Our friend Bingham, and others who advocate these very shallow frames, perhaps can tell us more about this. Mr. Fred Somerford, of Cuba, produced a very fine crop of comb honey which was secured on half-depth frames, if I am correct. In fact, he had so large a crop he himself went with it to New York to make a sale.

The locality of Northern Michigan was discussed a good deal. The wild raspberry, that springs up all over wild land where the timber has just been cut off, is one of the best sources, not only in quantity but also in quality. A bee-keeper present said a neighbor of his, Mr. James Martin, of Alden, Mich., had, during the past season, increased from 7 to 50, and secured 1500 lbs. of honey; and the stunning part of it is, he is a beginner, but, of course, an enthusiast. I am not quite sure they said he got hold of the A B C book, but I think it *must* have been that way, and then he gave his whole time and attention to it, figuratively speaking, and made a success the "first pop" that outstrips all the veterans. It is a little humiliating to think how many times this has happened before. Now, if I have not got this right, will James Martin please stand up and tell us the truth in the matter?

Mr. Chapman recommended a plan for requeening in the fall after the honey-gathering is mostly over (so that a few days more or less without a queen would not be of much account), by having a lot of queens cells almost ready to hatch; then remove the undesirable queens and give the colony a cell in a queen-cell protector. Friend Hutchinson suggested right here another point in favor of requeening in the fall; young queens can be purchased at a lower figure at such a time than at any other in the season.

WHAT TO DO WITH DARK HONEY FROM THE SOLAR EXTRACTOR.

I mentioned, while in Cuba, that the honey from cappings, where it is rendered by the solar wax-extractor, was too dark to be marketable at a good price. Friend H. K. Beecham, of Williamsburg, said he made vinegar of this kind of honey; and, in fact, he used all the sweets or sweet water, accumulating in the apiary, for the production of vinegar. He said he had six barrels of nice vinegar on hand at that time.

Somebody suggested that you could get the honey that clings to the cappings off in good shape by putting them in a pan and setting them in the oven. The oven would warm it up so gradually that the wax could be melted without even injuring the color of the honey. Some of the women present inquired what compensation the women ought to have for having a man around the cook-stove with the honey and wax on his boots, etc. I think it must have been Bro. Berg who suggested the cappings should be turned over to the women, and let them manage it and the oven. If I remember correctly, there were some murmurs among the ladies present at giving them so much extra work, when perhaps their household duties took all the time. Bro. Berg suggested that they have all the honey that comes from the cappings as compensation. Now, perhaps it was my imagination, instead of one of the women, that asked if they could not have the *wax* also. Somebody suggested that the greater part of the honey could be squeezed out of the cappings by taking a double handful and squeezing them into hard tight balls, thus making the honey ooze out. Well, one of these same women (they did not talk out loud very much, but they kept whispering to each other) wanted to know whether the bee-keeper took the trouble to *wash his hands* before he squeezed out this extra-fine honey from the cappings.

While I am speaking of the bee-keepers' wives and daughters present, perhaps I might mention that every one seemed to be exceedingly pleased to see Mrs. Root, for almost the first time, attending a convention in company with your humble servant. In fact, somebody, I do not know who, brought an easy rocking-chair in the afternoon for her to sit in. She sat in it a little while, and then made the other women take it by turns; and, by the way, is not that an excellent idea, bringing one or more easy seats for the ladies, especially the elderly ones? We men-folks do not get tired of talking about bees and honey from eight o'clock till dinner-time; and, to tell the truth, a great many times the president often has hard work to get the meeting adjourned when dinner is ready. Well, it would not be at all strange if the wives and daughters should get a little weary, and an easy-chair or two might induce them to come oftener. In fact, Mrs. Root has talked so much about meeting the bee-keepers and their families, she has at least *partly* promised me to go with me next time when I invite her.

PREVENTION OF ROBBING DURING EXTRACTING TIME.

When I made my last visit to the Paso Real apiary, in Cuba, they had been extracting; but the bees got to robbing so badly the men actually had to stop work. In fact, it was about the worst case of robbing I ever saw—that is, that kind of robbing. In the first place, our apiary of 500 colonies, where the ground was as clean as a brickyard, and no shade, was a bad arrangement, at least when the sun got to be pretty warm, as it was in February. Secondly, our people there had a fashion of taking out a wheelbarrow-load of empty combs and putting them back over the hives as soon as the honey was romoved. At the convention at Bellaire the matter was alluded to, and I think it was Mr. Beecham who suggested that combs right from the extractor should not be put back on the hives until dusk, or after dark. Why, at Paso Real I have seen, I might almost say, bushels of bees, instead of saying *a* bushel, piled all over the two-story hive where a set of combs had just been put on the upper story right from the extractor. They covered the whole hive, entrance and all; and not only that hive, but the adjoining hives. Sentinels and every thing of that sort were "snowed under" by piles of robbers. Of course, hundreds of bees were stung. A tent might be used to cover one hive, but the robbers poured on to the adjoining hives. My neighbor Hilbert suggests that the reason of this is that ten empty combs dripping with honey right from the extractor, placed over the strongest colony in a yard, will have a tendency to draw every bee in the hive (sentinels and all) right into the upper story to look after these combs; and during the time while the bees are licking up this honey, robbers can, as a rule, march right in. After learning the trick—that is, when the honey-yield begins to slacken, bushels of robbers will follow along where extracting is being done. I told them, when I saw the state of affairs, to shut right down and stop; but the boys said they wanted enough honey to fill some barrels to be shipped right away; that the hives were full of honey, and they did not have any work on hand but to take it out. Where we have it I would suggest putting back these empty combs by the light of the moon. If you think it can not be done I will go and show you how. Another thing, a full set of dripping combs put over any hive, even while the bees are busy gathering honey, stops work in that colony for pretty nearly all the day. If you put back the empty combs at night, the colony will be ready to go out and do a good day's work next morning.

I should be glad to mention the names of all the dear friends who were present and took part in that excellent convention of bee-keepers, but space will not permit.

THE NEW CALIFORNIA NATIONAL HONEY-PRODUCERS' ASSOCIATION.

A Statement from President Brodbeck.

BY G. W. BRODBECK.

Permit me to present to you some of the outlines of our organization as inclosed. We are meeting with much encouragement; and as the prospects for the season seem to brighten, increased interest is also developing in the project at hand to help the bee-keepers. The majority of the bee-keepers in this State are poor men, consequently the only hope they have of bettering their condition is by a co-operative movement in conjunction with the large producers. Our object is not to secure high prices for our product, as some seem to charge, but we do claim that the present cost of production makes it imperative that we demand better compensation for our labor than we have secured in the past; and unless we do succeed in attaining this, the result will be that the small producers will drop out entirely, and the production of California honey will be confined entirely to the large producer and specialist.

The leaders of this movement are all capable of disposing of their own product, consequently you will recognize the fact that our efforts are not entirely selfish.

GEO. W. BRODBECK, PRES.
LOS ANGELES.
GEO. L. EMERSON, SEC.
SANTA ANA.

532 Laughlin Building.

CALIFORNIA NATIONAL HONEY-PRODUCERS' ASSOCIATION.

LOS ANGELES, CALIFORNIA.

Incorporated under the laws of California, Dec. 26, 1902. Capital stock $25 000, divided into 500,000 shares, par value 5 cents. Principal place of business, Los Angeles, California.

Directory for 1903: L. E. Mercer, Ventura; Geo. W. Brodbeck, Los Angeles; M. H. Mendelson, Ventura; L. S Emerson Santa Ana; Geo. L. Emerson, Santa Ana.

Officers: Geo. W. Brodbeck, President, Los Angeles; M. H. Mendelson, Vice-president, Ventura; L. S. Emerson, Treasurer, Santa Ana; Geo. L. Emerson, Secretary, Santa Ana.

That co-operation on the part of the bee-keepers of California is the only possible means of solving the present unsatisfactory methods of marketing our product is seemingly evident to all. Other industries in this State have passed through all of the varied stages of a hopeless struggle that we have; but, fortunately and wisely, they united their interests, laying aside individual competition, and thus accomplished by co-operation what they had failed to do as individuals.

The object and aim of this organization is to follow none but tried and proven methods; but all these can not avail unless the bee-keepers fall in line and support this effort to help them. With the object of enlisting their support we offer this as a prospectus of the aims and intentions of this association.

We propose organizing local associations wherever bee-keepers can concentrate their product. This concentration of large quantities of honey and wax increases their value in many ways, and lessens the expense of grading and handling.

By combining and buying in large quantities we reduce the cost of supplies, and secure carload rates upon them.

Uniform grades of honey will be established, extracted being graded as white, light amber, amber.

A storage warehouse will be established at Los Angeles and wherever local associations are organized. Storage rates and insurance will thus be reduced

The association will be enabled to obtain better rates of interest for money advanced on honey than individuals, thus decreasing the cost of holding honey.

The membership requirement of one share of stock for every colony of bees confines the management to bee-keepers only.

The price of stock being small excludes no one, and also limits the possibility of speculation.

The limited capital compels the management to do all business on a cash basis, consequently all orders must be accompanied by cash.

Retailing and supplying home markets is commended and encouraged.

A commission will be charged for selling in car lots. All honey sold by the individual in less than car lots pays no commission. All honey sold by individuals must be at a price not less than that fixed by the management at the time of sale. All sales of car lots, made by individuals, pays a commission of one per cent.

All honey graded, sealed, and stored will be charged the actual expense of doing the same.

One of the greatest advantages to be obtained is that of preventing adulteration by a sealing device which we intend to attach to every can of our honey. When people find that they can secure an absolutely pure honey by buying that which bears our seal intact, they will insist on having our brand. This will raise the price of our honey to such an extent that adulterators can not afford to use it.

Another strong feature is our information bureau. By getting accurate crop reports and conditions governing the future crop, we can keep our members thoroughly posted as to the quantity of honey produced, or that in all probability will be produced, and thus we shall be in a better position to know what the price should be

We wish to call your attention to the fact that every thing is offered to the members as a privilege that they can secure if they wish, and they are not under any obligation to deal with the association unless they choose. Thus the association offers to its membership all the advantages it is able to secure at actual cost, and asks in return that the members pay simply for what they get, and stand their proportionate amount of expenses (as they share in all profits). This, and a promise to not sell for less than the association prices, is, we think, not too much to ask of any man for what we can do in return.

We will gladly furnish any further information upon request.

The great opportunities which this Association has for the improvement of the bee industry, and the well-known reputation of the Directors as honest and successful business men, serve as a guarantee that every stockholder will receive prompt and lasting benefit from this organization.

GEO. L. EMERSON, Sec.

[The California Association has made a good healthy start, and it rests with the California bee-keepers to take hold. Factionalism should be unknown. Any other organization that has failed to materialize should disband and help along the one that has got as good a start as this. Mr. Brodbeck, and all the Board of Directors above named, are men of high character and business standing, and the new organization ought to meet with favor.—ED.]

COMB-HONEY PRODUCTION.

How to Obtain the Best Results, Both as to Quantity and Quality; the Art of Making all the Sections in a Super "Fancy;" the Relative Proportion of Comb to Extracted Honey.

BY OREL L. HERSHISER.

[Those who attended the Pan-American exposition will remember some beautiful comb honey which Mr. Hershiser produced on the grounds. It was well filled out—remarkably so—and beautiful to look at. Mr. Hershiser explained that he did not follow the orthodox method of tiering up; that is to say, he reversed the method. Some time ago I requested him to tell us about the plan in detail—a plan whereby he could make nearly every section in a super "Fancy." This he promised to do by saying he would send the articles in time to make them seasonable. This is the first one of the series.—Ed.]

The theme "Comb-honey Production" is one that has always been popular with writers on apicultural topics; and as long as further treatment of the subject promises to be profitable it will not become worn threadbare. Whatever of better classification of known facts, in addition to newly discovered methods, the application of which will make apiculture more remunerative as an avocation and a better paying business as a vocation, is of vital importance to the bee-keeper.

Frequently nature, in her lavishness of the necessary conditions, will enable the unscientific and unprogressive bee-keeper, who does almost nothing to direct the efforts of his bees, to produce comb honey that would pass as "fancy," and to that class of honey-producers it may be said that the adoption of modern hives and appliances, together with a well-formulated system of management, based upon known facts, to the end that the maximum usefulness of the entire colony, during the honey-flow, is obtained, will more than double his average of comb honey, and will more than pay him for the necessary outlay in hives and appliances in one average season of nectar secretion. The thoughtful and scientific apiculturist has the greater interest in the system and methods which will yield him the greater net profits, not only in seasons that are unusually bountiful to all honey-producers, but those when but average or adverse conditions prevail.

It has come to be generally believed that a given number of colonies will produce from 50 to 100 per cent more extracted than of comb honey, that of the latter being greater if the honey-flow is abundant and less if it is poor. It is explained that the greater quantity of extracted honey is produced because of the repeated use of extracting-combs, and the resultant saving of the labor of the bees in comb building and the necessary consumption of honey to produce the wax therefor. A further reason for this disparagement in the production of honey in the two forms, under the orthodox systems of management, is very evident. The extracted-honey producer usually provides a super or additional body, with drawn combs, furnishing storage room for surplus honey, and preventing the crowding of the queen, by making it necessary for the workers to use the cells from which young bees have just emerged, for that purpose instead of continuing their use for brood-rearing. These store combs, being provided as needed, there is no interruption of the work of the bees, and consequent loss of honey, but, on the contrary, conditions favoring the rapid increase in the number of worker bees, which is very important in localities where there is to be expected late summer or fall flows of honey. When the capacity of the hive is restricted to one brood-body till time to put on the super for comb honey, at which time, by ordinary systems of management, there is not yet sufficient bees in the colony to occupy and work in it, they are said to be slow in commencing work in the supers. But, really, is it any wonder that they will not immediately expand their cluster so as to occupy an additional space, which is more than half the capacity of the brood-chamber? One other reason for the unequal proportion in the quantity of honey produced in the two forms may be mentioned in passing. Some apiarists, in their zeal to obtain a large crop of honey, extract before the bees have sealed it. Such honey is nearly always unripe, and likely to ferment, and is of much less value than it would have been if allowed to remain on the hive till mature. This practice is, therefore, emphatically condemned.

Speaking from personal experience, the hive best adapted to comb-honey production is one that can be built up or storified: one that has a comparatively shallow brood-chamber, somewhat shallower than the Langstroth hive. The comb surface of the brood-body should not be greater than the equivalent of eight Langstroth frames. The space on the upper surface of the brood-body should be sufficient to accommodate a super containing 32 one-pound sections. In the opinion of the writer, for his locality at least, the ten frame Langstroth hive contains too much space in the brood-chamber to obtain the best results, except it be contracted by dummies, and in comb honey production the use of the latter brings a portion of the sections over the dummies, and too far removed from the heat of the hive to obtain their perfect construction. On the other hand, the eight-frame Langstroth hive does not contain sufficient super surface to meet the requirements of high-pressure bee-keeping. And Langstroth frames generally have one or two inches of nice white honey along the under side of the top-bar, at the end of the white-honey season, which, if it could be placed in the sections, would greatly enhance the profits of the apiarist. Such shallow hive should consist of two brood-bodies, which may be used interchangeably, making what is sometimes called a divisible brood-chamber, and two supers (three would be better), which may be used interchangeably with each other or with the brood-bodies.

With such a hive the building-up of the

colony in the spring is easily accomplished by adding a second brood-body, supplied with worker brood-combs, as an upper story to the body in which the colony has wintered, as soon in the spring as it is found to be full of bees, and when the weather conditions are favorable and settled. If the brood-combs in the added body contain some honey it will speedily disappear as food for the rearing of bees; but if the colony is otherwise well provided with honey, no stimulative feeding is necessary. A colony that has wintered well, if treated in this manner, will attain to sufficient strength, and contain an abundance of bees of the right age for the white-clover harvest when it is ready, without feeding, except to provide the necessary food to keep brood-rearing in progress without interruption. No queen-excluder being used, the bees will readily go up and occupy this added section of the brood-chamber, and in a comparatively short time the double hive will be literally full of bees and brood from top to bottom, except the comb-space occupied by the reserve supply of honey for food, of which there should be at least a few pounds, even at the time for commencement of the honey-flow, to provide against periods of unfavorable weather or a failure of the flowers to secrete nectar. This reserve supply of food is very important, and it should never be allowed to become exhausted. On rare occasions, when there is an entire failure of the flowers, from which a crop of honey is expected, to secrete nectar, the life of the colony depends on it. Happily, seasons of entire failure from all sources are rare.

If the bees have wintered satisfactorily, and have met with no unusual setback during the spring, they will have multiplied, prior to the commencement of the white-clover honey-flow, far beyond that which would have been possible in the ordinary hive with single-story brood-chamber. We now have a hive of bees bred up to great strength. "The laborers are many; and if the harvest truly is plenteous," with the proper management of the colony, in its preparation and maintenance for comb-honey production, if the season is at all favorable, we shall reap an abundance. If, on the other hand, the season is unfavorable, we are in position to obtain all that it is possible for a colony, in the best possible condition, to glean.

Continued.

AIKIN'S CANDIED HONEY.

The Name Bologna Sausage Objected to; Candied Honey well Received at Roseville; Granulated Alfalfa well Liked.

BY MRS. L. C. AXTELL.

I have just finished reading Mr. Aikin's article on candied honey, and your and Dr. Miller's reply, and I must say I am greatly pleased. I was pleased that you could indorse what Mr. Aiken has said, for we must have a convenient style to sell our candied honey in or we can not sell it at all except in a small way. But let us start it out with a better name than "bologna sausage" honey. That name will imply to many minds something made up—a manufactured honey, just as if we would call oleomargarine "oleo butter;" and our greatest drawback in selling honey is the prejudice against manufactured honey—that is, honey out of the comb.

Even in this neighborhood, where we have been dealing in honey for nearly a generation, they don't learn to look upon honey that is out of the comb without some suspicions that it is manufactured. If we call it extracted, they or some people want to know what extract is used. Only a few days ago an old grocer, and a good man too, who has handled comb honey for us for 15 years or more, remarked he liked bees' honey better than that stuff, when we were showing him some beautiful white candied alfalfa honey from Utah.

I find that, by simply calling it, when describing it, "honey out of the comb," they understand it better than extracted. They even understand better when we call it "strained honey" than extracted. I am pleased that some one has marked out a plan that is more satisfactory for handling honey than by putting it in glass jars. Last winter we bought some paper oyster-boxes, and put some of the honey we had for sale into them; but they were not labeled on the outside; and they being bought at a market here cost much more than paper bags would, and late in spring they got so sticky that in emptying them they had to be scraped out as if lard had been in them. I think our eastern honey would melt so that it could not be peeled off when warm weather approaches.

We bought several cans of alfalfa honey from Utah, shipped in by Editor York, all of which was granulated; but some cans were harder than others. One can especially was exceedingly hard. None of it gets hard like crystallized sugar, but more like frozen butter.

We like to have it warmed a little, and stirred up just enough so we can spread it upon bread. Some of our neighbors said they liked it candied because it was so nice to spread upon the children's bread to carry to school.

Our own honey crop of 1902 was only about 10 lbs. of comb honey and about 10 of extracted, from about 48 colonies. The extracted did not candy—the first we ever took that remained liquid that I remember. I guess the reason was, most of it was not sealed over, and if it had been left a short time longer on the hives it would have been carried down into the brood-nest.

Some did not like the alfalfa honey, and wanted something stronger; so by melting some of the alfalfa, and mixing with ours about one-third alfalfa it granulated soon and gave better satisfaction than if it had been all of our own.

Mr. Axtell and I are exceedingly fond of the granulated alfalfa, and never ate so much honey in our lives as since we bought granulated alfalfa honey. We had one can. We bought it in the winter. We had not sold out, and in the fall we opened it and found it still granulated hard. After being kept all summer in our honey-house I could not see but it was just as nice as when we bought it in the fall.

We took a can of the honey to a grocer to sell; but as it comes out so hard, and after standing for a time looks so dauby, it does not sell readily. I am sure it needs to be weighed out in convenient packages for them to handle.

Candied honey sells with us more readily than the liquid honey, and no one objects to paying 15 cts. for it when comb honey brings 20, or 12½ cts. when comb is 15.

I am satisfied one could sell a great quantity if weighed out into small and large packages, and would take it regularly over the country and through villages, not trying to sell too much at a time, as too large an amount gets dauby before they use it up. We offer it by the $1.00 worth first; and if they hesitate to take so much, then offer less, but keep it at same price so that poor people can have the same chance that their more wealthy neighbors have of eating honey.

Roseville, Ill., Mar. 9.

[The word "bologna sausage" was introduced only as a pleasantry. It would be unfortunate to have the word attached to this unique package of honey, and, so far as the columns of GLEANINGS are concerned, we will see that the designation is suppressed—not because it is vulgar or unclean, but because honey is supposed to be a very different article from that which bears the name "bologna."—ED.]

Our May Symposium.

FULL SHEETS VS. STARTERS IN THE BROOD-NEST.

How and Why Starters Can be Used to Advantage; Conditions under which Bees will Build Drone and Worker Comb; Feeding Outdoors; Can it be Practiced Safely?

BY M. A. GILL.

Mr. W. K. Morrison's strong stand against starters in place of full sheets of foundation or drawn combs for the brood-nest plainly shows again that different localities need different methods, as none of us would dare to criticise Mr. Morrison's judgment in the different fields where he has practiced. But after using starters only for years I can not but think that their use is the proper thing here in Colorado, when working for comb honey exclusively. It is a fact patent to all, I think, that a colony that is building a set of combs in the brood-nest, and that has at the same time ample storage room in the super, has all desire to swarm removed, and the necessity for rapid comb-building for storage purposes removed, and that the desire for workers in such a colony is paramount. Hence nearly all the comb that is built by the bees, and immediately occupied by the queen, is built worker size, whether the queen be one month old or three years old.

But to secure these conditions, everything must be normal. The colony must have a laying queen and an ample field force at the time they are hived, whether the swarm is forced or natural. Again, it is necessary to have a steady flow of honey; but these conditions nearly always prevail at such times in Colorado.

Any condition that will retard rapid comb-building like an old queen with a good force of young bees and a small field force, or a colony that has been given a frame or two of brood to help them, and has a small field force, or a colony, let it be large or small, that is compelled to raise a queen, will invariably construct much drone comb.

But I think it is still safe and advisable, here in Colorado, where our swarming season does not stammer along through the year as in oriental countries, but is nearly all done in twenty days after the honey-flow begins, to continue the use of starters only in the brood-nest; and our reward will be a good crop of the most beautiful surplus honey that can be raised, and brood-chambers filled, with none too much drone comb, as hundreds of my own and others' hives will attest.

In your April 1st issue you say to a correspondent that it is not safe to feed good heavy syrup to bees in the open air. I wish to relate a little experience I had with open-air feeding last fall. I had sixty forced swarms that I moved to a comparatively isolated location, and on examination, about Sept. 20, I found them short of stores. As you know, my covers will hold liquid like a tin pan. I inverted them on the hives, and used them as feeders, first filling them with excelsior, then pouring the syrup right into the excelsior. I made the syrup by taking 75 lbs. of water to 100 lbs. of sugar, and letting it just come to a boil. This would, perhaps, leave about 165 lbs. of syrup to 100 lbs. of sugar used. I fed them this amount at a feed by pouring, say, 8 lbs. each in 20 covers scattered about the apiary. The feeding was done from 2 P. M. to 3, and all entrances were left full size.

I continued this three times each week, until I had fed this apiary about 1600 lbs. of syrup, realizing that much would be consumed in brood-rearing on account of the continued feeding. When I quilted them for winter, Nov. 1, I found them in prime condition; and on April 1, 1903, I found them still in prime condition, and all alive, 59 of them with queens laying. The feed cost about 75 cts. per colony. I fed all together to my bees over forty 100-lb. sacks of sugar made into syrup; but in all other apiaries I was compelled to feed inside the hives on account of neighbors' bees.

Of course, in the apiary first mentioned, some colonies got more than others, as is the case in any honey-flow; but all got some, and enough, while some that needed it were skipped by the plan of individual feeding: hence the best results were obtained by the open-air plan. Is there anything more successful than success? People living where it is rainy, cool, and cloudy during October, must not coufound these conditions with ours here in Colorado, where it is sunny and dry and hot during the day time, so that sugar syrup can be ripened and sealed up like natural stores, even in October.

Longmont, Col., April 11.

[It is true that the matter of locality has a great bearing on this question of starters versus full sheets for the brood-nest. Bees are much more inclined to swarm during a light honey-flow that continues on from day to day than when the nectar comes down with a rush. If what you say is true, I should suppose that in Texas, at the beginning of a honey-flow, or just prior to the heavy part of it, the bees would build store-combs; but after the season really begins, then they would build worker. In a warm climate, where the honey-flow is moderate, just enough to incite swarming, and the season prolonged, it might be advisable to use full sheets.

I should be glad to hear from others on this question on which there seems to be so much variance of opinion. If we work at the problem a little longer we shall be able to harmonize the opinions of all. Mr. Gill has possibly explained why there is this conflict of opinion.

As to feeding outdoors, while *you* may be able to practice it in your locality at certain seasons, there are hundreds of others, in other localities, who had better let it alone entirely. It is always attended with the danger of a general uproar in the apiary. We can feed in this locality a very thin syrup made of grape sugar and water; but we have never been able to feed with any degree of safety a syrup made of granulated sugar and water—at least not so strong a mixture as you used, or we should have a fearful uproar. I think it is a safe rule to say that the average beginner, in our locality at least, had better feed in the hive, and that, too, toward night, so as to give the bees a chance to take in the syrup and get down to their normal condition after the excitement of the inrush of feed that comes from some mysterious place.

I well remember an experience I had at an outyard where I attempted to feed in the open air. Father had cautioned me against doing any feeding of that kind. But I wanted to learn for myself, *and I did*. No fact in my experience stands out more clearly than that. The yard was about a quarter of a mile from the road, but none too close. I fed in the open air. In the space of about half an hour I had the worst fighting and robbing, at almost every entrance in the apiary, I believe, I ever saw. There was a perfect pandemonium; and sting—I never saw *all* the bees of an apiary so vicious before. I took my bike, after contracting the entrances down, and left the apiary in a hurry. I came back the next day to see if things had quieted down, which they had to a certain extent; but for days and weeks afterward I had to exercise the utmost caution. The bees had had a good taste of stolen sweets; and whenever a bee got a sip of honey from any hive I was working on it started a rumpus. The high key of a few bees would start the whole apiary almost instanter.

Hello! here is another article already, indorsing starters.—Ed.]

A PLEA FOR STARTERS AS AGAINST FULL SHEETS.

Conditions under which Drone Comb is Built; Identification of Large and Small Bee-keepers.

BY F. P. CLARE.

The article entitled "Forced Swarms," on page 233, prompts me to request a favor of you. Some years ago some one suggested that each writer should place after his signature the number of colonies he owned and operated. This suggestion was not acted on at all generally, and I suggest that with it the writer should state the length of time he has been in the business: thus, Jas. Smith, 10 – 250. This would enable all to give due weight to articles from men who are making a success of the business, and save beginners (to whom names are alike, and who are in danger of being led astray) expensive mistakes.

I am led to make this suggestion by that article from W. K. M. Who is he? Where located? How many colonies does he operate? are questions that suggest themselves on reading over his article in which he takes such decided ground against the use of "starters." One is led to think that he is either a beginner or a hard-up foundation-manufacturer, and in any case a rash writer; or, Mr. Editor, is it "locality"? Here in Ontario, if queens are vigorous we have no difficulty with an excess of drone comb, *if the brood-chamber is restricted to five L. frames, or one section of the Heddon hive*. As to the hordes of hungry drones eating up the surplus, we can point him to a yield of 200 lbs. to the colony, and not a comb in the yard but was built from a starter. Mr. Doolittle has pointed out again and again the conditions that lead bees to build drone comb (lack of storage room or a failing queen). "Forewarned is forearmed." Have the conditions right. But you may say, "That is the sticker." Not at all. As you clip the queens in May, mark those hives whose queens are clipped;

they were clipped the last of May, and so are two years old. Should one of these hives swarm (and they are the ones that will swarm to renew their queens), kill the queen and allow them to issue with a young queen) and you will have but little drone comb to prune out of your hives. I have seen such bungling work made out of full sheets, either in not fastening foundation securely or improper wiring, that I feel like cautioning beginners, or at least advising them to try foundation starters in a restricted brood-chamber before they settle down to the conviction that full sheets of foundation are indispensable to success.

That the building of comb is a stimulus to the colony, and that the combs built by early swarming are a clear gain to their keeper, all bee-keepers (are supposed to) know. Why should we ignore the experience of such men as Hutchinson, Doolittle, etc., and part with our hard-earned money for what we can do as well without?

In recommending your ten-frame Jumbo hives I have wondered that you never mention the eight-frame. As the eight-frame Jumbo is the equivalent of the-frame L., I find it a good hive for out-yards that are run for extracted honey, giving lots of room for the queen while using the standard bottoms and covers. Try a few and be convinced.

Bees have wintered better that usual. We lost but one out of 229, and one was queenless this spring.

Rideau Ferry, Ont.

[It used to be the custom, some years ago, to have writers indicate the number of colonies they were operating; but it so often happens that a man with a few colonies, a close observer, is able to contribute much of value to those who own several hundred colonies that I have come to believe that a man's ability to give information does not necessarily depend on mere bigness or number of his apiaries. Doolittle, for example, acquired most of his experience from a comparatively small apiary; and yet during that very time there were hundreds of bee-keepers owning five times as many as he, who were sitting at his feet as the Gamaliel of modern beedom. E. E. Hasty, the bright and versatile writer of the *American Bee Journal*, has only a few colonies; and yet I venture to say there is not a more practical man in all our ranks. On the other, hand an extensive bee-keeper may so deputize his labors to others that he may know but little about the details.

As to how many colonies Mr. Morrison has, I can not say; but he has kept bees in various climates, and has had an opportunity for observation that many of us have not had. He is educated, and trained to draw conclusions from the standpoint of the scientist, as well as a practical man.

As intimated by Mr. Gill, in the article preceding, this question of foundation versus full sheets hinges largely on locality, but not altogether, I suspect. It is *possible* that Mr. Gill and Mr. Morrison might trade localities, and each still be of the same opinion, after trying full sheets and starters.

Hello again! But here comes an old correspondent, a practical bee-keeper, one of the veterans, who indorses *full sheets*, and strongly supports Mr. Morrison.

FULL SHEETS OF FOUNDATION; MORRISON INDORSED.

I wish to indorse all that W. K. Morrison says on page 233 in regard to using starters in the brood-chamber. I have not used any for several years, for the reason that the bees would fill all or nearly all below the starter with drone brood. I prefer full sheets, but would use empty frames instead of starters, although all bees do not work alike. One of my neighbors told me that he did not need any foundation in his sections — that his bees built combs all right without any—a new experience to me.

J. T. VAN PETTEN.

Washington, Kansas.

[By way of variety we have still another advocate for starters.—ED.]

FOUNDATION STARTERS.

What to Do with the Surplus Combs.

BY GEO. W. STRANGWAYS.

Mr. Morrison, on page 233, takes a very extreme view with regard to the use of foundation starters. Taking his discussion as a whole, I have to say that, if you give me a colony able to raise good healthy drones, I will give you a colony able to give you a good supply of honey. By this, don't take me to mean that the more drones you have the better the results. But who ever heard of a colony of bees swarming without their drones, and, consequently, what will they do with full sheets of foundation? If the colony be a strong one they will certainly convert considerable of the brood foundation into drone comb, and thus foundation, with the busy bees' patience and valuable time, is wasted.

I have always used starters with the exception of a few trials with full sheets, and in those trials I was annoyed, not merely by having the bees convert some of it into drone comb, but by finding the combs warped, and that even with wired frames; and often when a hot spell would occur I would find the foundation leaning one comb into another, making very crooked combs, caused, of course, by the heat and weight of bees. My object in using foundation is to get straight combs, not brood-combs, for I don't think you can compel the bees to build all brood-comb. Of course, our object should be to have as much brood-comb as possible built; and to obtain that you must have colonies in condition for this work. All small colonies with young queens, and even medium to strong colonies, will build little else than worker comb. I get the greater portion of my combs built from such colonies.

In extracting, if I find a colony with more drone comb than is desirable after extracting (I work principally for extracted), I place the frames with much drone comb in them to the outside of the brood-nest; and if it is a case of too much drone brood, any that I find in proprer condition for dropping out of the cells, I simply take a sharp uncapping-knife, shave off their heads with the cappings, turn the comb on its side, hit the frame a light tap with the back of my knife, and if it has been well shaved you will find but few drones left. At the end of the season, or when the opportunity occurs, exchange these combs for some with more worker comb; then with the uncapping-knife cut out the drone comb and trim up the remaining, which will be worker comb, by cutting it wedge-shaped, and try again. Another season you will have your wax for profit. But such combs can be used for extracting, and will be filled with honey just as readily as those with worker comb. I use these regularly in the upper story for extracting.

With these conditions you can not use wired frames, or, in other words, starters and wired frames won't work together; but the other way wired frames must have full sheets, and then the bee-keeper takes the consequence; but wire is so light it would offer very little objection in the cutting.

Mr. Morrison's article has, of course, reference to tropical conditions and the production of comb honey, which I suppose would make some difference; but I am of the opinion that, even for comb honey, the drone pest could be kept in check by the system I speak of.

Elora, Ont., Can.

[It is a fearful waste to let bees build drone brood. It would be cheaper for you to put such combs in the solar wax-extractor, and substitute worker combs.

The sagging or stretching of foundation, or one sheet leaning against another, can be largely, if not entirely, overcome by wiring. Even with starters I would use wire. I have seen bee-keepers during extracting waste a great deal of valuable time in fussing with combs insecurely fastened in the frames, all for want of wire. If one's time is worth any thing, he can not afford to throw away good time during the rush of the season in handling these fragile combs like eggs. A very *little* time spent in wiring the frames in the off-season of the year, when one can do not much else, will save a *great deal* of time in the extracting season.

Now, to sum up this whole discussion, I am of the opinion, after reviewing all the evidence, that, in the majority of the localities in the United States, at least, one can manage to have all worker-combs built from starters, and thus save considerable expense in the way of foundation. Some do manage it, and why not others? If his locality will permit of it, let him cut down his foundation-bill, say one-fourth. While we are makers of foundation, in a large way, we desire to have truth come out, even if it should cut down our trade.—Ed.]

* * *

THE FERTILIZATION OF QUEENS IN CONFINEMENT.

More about Fertilization in a Glass Carboy, referred to on Page 94 of our Journal for Feb. 1st; Fertilization of a Queen in a Small Wire-cloth Cage.

BY R. F. HOLTERMANN.

Since writing my last article on the above subject I have been in the province of Quebec for the government institute meetings. Other matters have kept me very busy, hence the delay in following up the subject as suggested by you. I wrote Mr. Rowsome privately for further information. The following bears upon the subject in hand, and is a reply to my letter for further particulars. The letter is dated Feb. 9.

"In reply to your favor of Feb. 7 I may say that I did not experiment with the fertilization of queens during the past season, as I was busy during the swarming season. This method of fertilization did not originate with me. I heard of it from a Mr. Inksetter, a farmer near Ancaster, who is sawing up a bush three miles north of here. He was ill all one summer, and amused himself with queens and drones in this way, with, so he says, complete success. I do not clip queens; but as I saw coition take place in the carboy, and laying follow, I came to the conclusion that the fertilization occurred in the carboy."

Now for a startling experience which I heard from a bee-keeper, Mr. A. B. Comstock, Sherwood, N. Y. Last summer he was inspecting a particularly fine colony, and found a number of queen-cells just hatching. He removed the hatching queen-cells, intending to dispose of them as soon as he was through with the colony in hand. This took considerable time; and when he returned to the bunch of cells there was just one hatching-cell left. He took the queen out of this, caged her under an old-fashioned wire-cloth cage, the ends frayed and bent down into the comb; it was about 4 inches square. Under the cage was some hatching brood, drone and worker; he also caged two or three drones with the queen. Owing to the rush of the season it was some 16 days before he remembered the queen. Upon inspecting the cage he found the queen alive, and having laid in the worker-cells. One drone was dead in the cage. He cut a hole from the other side of the comb into the cage, out of which the queens and bees passed into the hive. The queen proved to be an excellent one; but to his surprise the eggs deposited by the queen under the cage produced worker-bees.

I can not help connecting the demijohn experiment and this. Our friend Comstock's method, if successful, would be very simple, as comparatively little time or expense would be involved. Many may try it this summer.

Now as to my experiment. Lack of time was the trouble with me. I could not watch the tent as closely as I should like to. In these cases the government should step in; and let us hope that the Department of Agriculture at Washington will receive at least $20,000 a year to carry on investigations. You will notice I attributed my failure to the nuclei with queens being between the tent and the large apiary, the noise of flying bees and drones drawing them to the perforated-metal entrance. By putting the nuclei on the other side of the fertilizing-tent the position in this respect would be reversed. This point I saw before last season closed; but my large buckwhat harvest prevented undertaking any more at the time.

At Syracuse Mr. F. H. Cyrenius, Oswego, stated he thought he could help me in preventing the queen from trying to get through the entrance through which the bees were flying, and kindly invited me to Oswego. Gladly availing myself of the invitation, to Oswego I went. He for another purpose shades this entrance through which worker bees fly, and throws all the light he can on the entrance to which he wishes to invite the queen. Now, I did not do this; in fact, the queen had not only to pass through a ⅞-inch-wide hole in a ⅜-inch-thick board at the rear of the nucleus, but through a hole of similar width in a ⅞-inch-thick board fence.

In the above I have given every thought I have upon the reason of my failure, and the remedy. It is, perhaps, with a little reluctance; but having gone so far, it is only natural to desire to crown the effort with success. Yet I hope many will try these experiments. Many can try the first and second, and a few the larger. All I ask is that, as success crowns the effort, it shall be reported in GLEANINGS. Of course, should Prof. Benton try these experiments it will have to be published through the regular channels.

Brantford, Ont.

[These reports are interesting and valuable; but they are so contrary to the experience of others that we are almost inclined to put an interrogation-mark after them. Is it possible that Mr. Rowsome, Mr. Inksetter, and Mr. Comstock could each have been mistaken in what each saw or thought he saw? Did fertilization actually take place in the carboy, or something which looked very much like it? The experience of Mr. Comstock seems to leave no doubt, if he is a man of veracity and experience, that the queen taken from the cell was actually fertilized by the dead drone found in the cage with her. The fact that there were eggs in the comb that she herself laid, and that these same eggs developed worker bees, seems to indicate that coition had actually taken place; but even if it had, I should be more inclined to think that the general rule, that queens must be fertilized in the open air, still holds true. Nature sometimes makes a deviation from the general laws laid down for her; and it is possible that she did so in the case reported. If so, it would be a new fact to us that queens may be fertilized in confinement in rare instances; and it is possible that there are conditions under which fertilization could be made a success when both the drone and the queen are confined. There is food for thought here, and an opportunity for experiment; and with Mr. Holtermann I sincerely hope the United States Government can at some time, if not in the immediate future, conduct some experiments that will give us a little light on this question. As it is, I commend this article to the consideration of Prof. Frank Benton, at Washington, and Mr. William Newell, of College Station, Texas, and other stations where apicultural experiments are being conducted.—ED.]

Heads of Grain
from different fields

QUEENS WITH DENTED SIDES; A QUEEN THAT WAS CONDEMNED, BUT PROVED TO BE ALL RIGHT FOR HONEY.

Last summer I bought seven of your red-clover queens. One of them got hurt in some way in the mail. She had a small dent in her body, just below the waist. Mr. J. Zay advised me to send her back by return mail. But I thought I would try my luck. I had a very large colony of blacks, and put her in with them. Last Tuesday, March 17, I looked all my bees over, and found her still alive; but her body is all turned to one side. There is no brood nor any eggs. The other six are full of yellow bees.

Mr. Zay bought one red-clover queen of The A. I. Root Co. She was dark, and her bees still darker. He called them good for nothing, and was going to replace her with a golden queen, and he gave the Root queen to me. I caught a swarm of black bees on the 4th of July, and put the Root queen in on the 6th, and took 42 nice sections of red-clover honey from the Root queen.

Now, Mr. Editor, you and I do not agree on finding no brood within two inches of the Hoffman-frame top-bar. I have Root chaff hives, Hoffman frames, Hill device, and a five-inch cushion on top, and they have brood right up to the top-bar. My single Dovetailed hive has a little brood down in the center. In spring it's too cold to rest on a top-bar, and in summer it is too hot. Bees, as a rule, will select the safest part of their hive for their brood. I don't think Dr. Miller's splints make a hive any warmer, nor Mr. Root's wire any colder. But if you want brood up to your top-bars, you must do as Mr. A. I. Root advised in his A B C book — get out your blankets and keep your hives warm. I shall have to buy 50 supers this year; so please tell us, are the sections in the outside rows on the M super with six fences as well filled as a P super with 8 fences? HENRY ASAM.

Carleton, Mich.

[Sometimes the dent in the side of a queen seems to do no harm. I remember several of our best breeders that had a slight dent somewhere in the abdomen. The queens were very prolific, and their bees excellent honey-gatherers. So far as I can remember, they did uniformly good work, and filled out their allotted days. It is quite possible to conceive, however, of a case where the dent may be so deep, like the one you describe, as to cause a permanent injury. We book your order, therefore, for another queen.

The case of Mr. Zay simply shows that he did not know a good thing when he had it. A great many bee-keepers judge a queen by her looks and not by her performance nor by the performance of her bees. If she had been golden yellow, and good for nothing, he possibly would have been very well pleased with her. "Forty-two nice sections" after the 4th of July is not a bad record.

It is true that warmth of the brood-nest will make a great difference in the amount of brood built in a brood-frame; but Dr. C. C. Miller uses the same kind of single-walled hive that we do, so that his brood-nests are no better protected than ours. But the season of the year makes a very great difference as to how far the brood is built up to the top-bars. If you are in the habit of having double-walled hives throughout, and look your combs over just before the honey-flow, you will find the brood much nearer the top.

Regarding the relative difference between the M and P super, the one using outside fences and the other not, I can not remember that any specific comparisons have been made between the two supers; but I have noticed this: That fences, when placed between the sides of the super and the side of the brood-nest, have a tendency to make a better filling of the sections on the outside surface. At all events, it has been reported that all those supers having outside fences give better-filled outside sections. But the M super, Danzenbaker of ten-frame width, is now supplied with an extra fence, so that the two supers are now on an equal basis.—ED.]

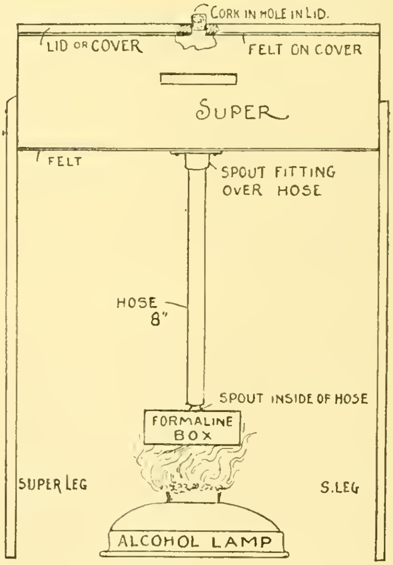
CURING FOUL BROOD; ANOTHER SUCCESSFUL USE OF FORMALIN AS A GERMICIDE; HOW TO APPLY, ETC.

In February 15th GLEANINGS, C. H. W. Weber speaks of curing foul brood with formalin, and I decided to write you of my experience along the same line. Never having seen foul brood, it secured such a hold in my yard before I discovered it that every hive was more or less affected with it. You can imagine how I felt; and, not knowing exactly what to do, I went to Mr. Couse, secretary of the O. B. K. A., and he kindly came and went over my yard, and recommended me to cure them according to the McEvoy plan, which I did; and up till September 15th no signs of the disease appeared in any of my hives.

Another thing, my extracting-combs were wet, as I did not place them on the hives after extracting for the bees to clean out, and Mr. Couse said it was a pity to melt them up, and that it would be a good idea to try the formalin on them as recommended by Prof. Harrison. I did so, and no hives on which I placed the combs showed any signs of the disease at last examination, Sept. 15.

Another fact, I had a set of dry brood-combs that showed foul-brood marks, and I decided to try an experiment on them. I placed them in the fumigating-box, and fumigated them with 1½ oz. of formalin; let them stand over night, and next morning fumigated them again with 1 oz. of formalin. I then hived a second swarm on them, and no foul brood appeared up till last examination, about the last of September.

Now, do not think that I claim said hive is free, for the germs may be still there, and may develop next year.



For fumigating the combs I used a super as follows:

I first tacked felt around the bottom and the top edges of the super. I then nailed a board solid to the bottom of the super, and bored a ¾-inch hole in the center of the same. Over the hole I tacked a piece of felt 4×4, and cut a hole in the same to correspond with the hole in the bottom of the super.

I next got a piece of engine-hose about 8 inches long, and a round pressed tin box, 4 inches in diameter, 1½ inches deep. I took this to the tinsmith, and got him to make a ¾-inch hole in the center of the lid, and solder a 2-inch spout on the same so as to fit tight when shoved inside of the hose, and solder the lid tight to the box. He then took a piece of tin 4×4, cut a ¾-inch hole in the center, and soldered a spout on to fit tight over the hose. This I nailed tight to the bottom-board.

For a lid to cover the super I used a heavy flat board with a ¾-inch hole bored in the center, and cork to fit in the same.

Now set your eight or nine combs in the super; place the lid on top; leave the cork out and put something heavy on the board to hold it solid on top of the super, but do not cover the hole. Remove the tin from the bottom end of the hose, and pour into it 1½ to 2 oz. of formalin; place in position again; and, under the same, place an alcohol-lamp. Light the lamp; and as soon as you detect the fumes of the formalin coming out of the hole of the lid, cork it up, and a few seconds after remove the lamp.

I would recommend leaving the combs in the fumigating-box from 12 to 18 hours, and be sure to have the box and attachments as nearly air-tight as possible.

Above I give you a drawing, showing, as nearly as I can, how I had the box arranged. J. W. THOMSON.

Britannia, Ont.

[Mr. Thomson speaks of using 2 oz. of formalin. I suppose he means the liquid, for it comes in two forms—in the powder, and in the liquid condition. The former is less powerful, but will accomplish the same result if enough of it is used.

So far reports have shown that formalin gas, when properly applied, disinfects the comb. We have had so far, I think, some five or six reports, all decidedly favorable save one. I hope that bee-keepers all over the country who have the disease in their apiary will immediately conduct experiments, and report results. If we can disinfect combs without melting them up, from foul-broody or black-broody hives, we shall have made a long stride ahead. I still have my doubts about it, but am open to conviction.

This reminds me that Mr. C. H. W. Weber, of Cincinnati, has prepared a little pamphlet on the treatment of diseased colonies with formalin gas. The price of the pamphlet is 25 cents.—ED.]

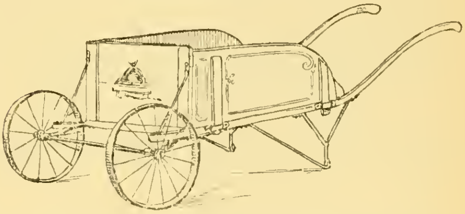
AN IMPROVEMENT IN WHEELBARROWS SUGGESTED.

I wish to call your attention to what I think would be a very valuable improvement in wheelbarrows for bee-keepers, and for other people too, for that matter, and yet so simple that I am surprised that others have not called attention to it long ago, which I am not aware any one has done.

I inclose a sketch which will explain itself. The barrow in the cut is supposed to be a modification of the Daisy, and the main points of difference are simply these:

1. Two wheels on the axle, instead of one —one at each end of the axle; and if the axle were made a third longer, and the wheel end one-third wider, it would be better.

2. Make the floor of the barrow *level*, the front end level with the back end.



3. Make the end-board perpendicular, instead of slanting backward, and make it a little higher than in the Daisy.

4. Make the handles with a much greater upward curve, if it can be done. This is very desirable.

5. Make oil-cups, or orifices, in the bearings, for oiling the axles; and these would be much better if protected by a little movable cap to exclude the dirt. These oiling-cups would be a valuable improvement in the Daisy, or any other good wheelbarrow.

Now, this barrow would not be as pretty and artistic as the Daisy, but it would be far better than any other I have ever seen. It would not be for ever ready to tip over when in use, as the single-wheel barrow is. You would not have to lay a piece of 2×4 scantling across the back end, and lay in a loose floor, in order to carry supers of comb, hives of bees, or jars of honey level; and when you removed one of two jars, you need have no fear that the other would instantly tip over — jar, barrow, and all. And then your perpendicular back-board would be of some use to you, instead of being of very little use as it is now.

Then when you wished to weigh your hives for winter (or weigh any thing else) all you would have to do would be to place your scales upon your level barrow, wheel out among the hives, and go to work.

JOHN W. MURRAY.

Excelsior, Minn, Mar. 12.

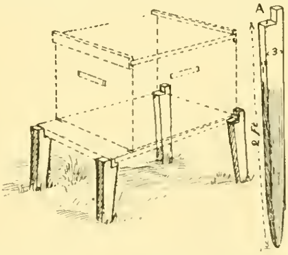
[Wheelbarrows have been made with two wheels; and while they have certain advantages, they have disadvantages which, in the minds of many, more than counterbalance. Two wheels would make more friction, and involve more expense. But the worst feature is, they will not run in a path or on a narrow board. If one had good nice level driveways smoothed down, or a bee-yard as smooth as a brickyard, a two-wheeled barrow would do very well. A single wheel in a narrow path would run much easier than two wheels on ordinary sod.

Your idea of curving the handles, and having the front board perpendicular and the platform level, is all right. Take that same wheelbarrow and put one of the wheels in the center, and throw the other aside, and you have a better carrier, or at least one that will suit the average person and the average beeyard better.

If I were going to use a two-wheeled vehicle I should prefer a hand-cart, for then the load would be carried almost entirely by the wheels. In the barrow that you show, the man would have to carry too great a proportion of the load. The plan of having the ordinary barrow with the platform slanting toward the wheel, is for the very purpose of shifting the load as far as possible on to the wheel. When the handles are curved and the platform horizontal, there is quite a tendency to drag or catch the legs unless the grass is mown pretty close.—Ed.]

A SIMPLE AND CHEAP HIVE-STAND.

I have been considerably bothered to find something to set my bee-hives on. If I set them on bricks the bricks are let down by the earth-worms, and the blue grass grows up in the way of the bees. So I have hit on this plan: I make 4 stakes 3 in. wide, one inch thick and two feet long; drive them in the ground about 1 foot; space them one near each corner of the bottom-board and level up with a spirit-level, with the notch A pointed inward from the sides; slip the hive in, and there you are. My stakes are made of creosoted pine, from a piece of bridge-timber. Of course any durable timber will do—for instance, bois-d'-arc hedge cuttings. My boys call this philippenoing. What do you think of it?



Sladensville, Ky. R. C. Hollins.

[I had often thought of four simple stakes, but had never got around to try them. The plan is simple and cheap. It offers another advantage, in that the operator, in working over the hives, can shove his toes under, permitting him to get closer to the hive. This may seem like an insignificant advantage; but when one is bending over and trying to get out the furthest frame on the opposite side, and keeping it up day after day, he finds it an advantage to get as close to the hive as possible. Then there is another advantage. In moving the hives one can stoop down and reach under them with his fingers. Many of the hive-stands do not permit of this. The only objection to the stakes is that they can not be readily shifted. But if one has laid out his apiary carefully he can drive stakes, by line and by measurement, just where he will always desire to have his hives, whether on the collective or individual line plan.

I do not know but the Root Co. had better consider the idea of having stakes offered for sale, soaked in some permanent wood preservative, at so much a hundred or thousand. The bulk that they would take in shipment would be very small; and when one ordered a hundred hives he would order, of course, 400 stakes. The expense of this would be insignificant, and he would have first-class hive-stands all ready to drive in the ground, ready to receive his hives as soon as he has them nailed up.—Ed.]

A BEE-KEEPER'S FIRE-LOSS.

Our apiary is located 3½ miles down in the river swamp below Macon, upon an Indian mound which is about 25 feet high, and about 300 feet in diameter at the bottom, and about 150 ft. at top. We have the top filled with bees. Then we have cut a spiral shelf, beginning at the top, and going down and around the mound till we reach a point just above the highest freshwater mark known. At the foot of the mound, and above high water, we built a house last spring to work in and keep our supplies, etc. In fact, every thing connected with the bee business, except the hives of bees, was in this house. On Sunday night, March 22, this house, with every thing we had, except the bees, and eight or ten hives of them which were not near enough to catch, were burned up, so we have nothing left except the bees, and a few—perhaps 2000 or 3000—old sections on the hives that remained over, and were not taken off the hives. We didn't know of our loss for a week after it happened, as the water was too high to get there. Thus our prospects are largely blasted for this spring. The honey-flow will be on in about 7 or 8 days more. We will try to fill orders for queens; but nuclei and bees by the pound we can't. Our loss in supplies and fixtures is between $400 and $500, with no insurance, to say nothing of the loss of honey and trade due to destruction of our supplies. A. L. Swinson.

Macon, Ga.

[We regret to hear of your loss by fire. This only emphasizes the importance of having what is known as insurance for bees.—Ed.]

THE RIGHT KIND OF FREE ADVERTISING; MORE THAN LIVING UP TO THE GOLDEN RULE.

I read with interest what you say about Mr. Hutchinson as a queen-breeder, page 241. Well, he carried this further than any fair-minded man should ask for; but I inclose you a letter from J. P. Moore which will prove that there is one more of them. The facts in the case are as follows:

I purchased last year of him six queens, which all came through alive, and were safely introduced, but laid very sparingly. The bees tried at once to supersede them by building cells. Although I frustrated their intentions at the time, they got the best of me finally, and all of them were superseded by fall. I wrote the facts to Mr. Moore, asking him how soon he could send me some others, telling him at the time that I did *not* hold him responsible for the bad luck I had, and am of the same opinion now, as he fulfilled his side of the deal all right. (The inclosed letter explains his ideas of it.) I have written him that I accepted his offer, but thought it no more than right that I should bear half the burden at least, and therefore would send him $3.00 as soon as the queens arrived here.

Now, such men should have a little free advertising, I think, if honesty is worth any thing. M. R. KUEHNE.

Pomona, Calif.

[We take pleasure in presenting Mr. Moore's letter. It is in pleasing contrast to some letters sent out by breeders.—ED.]

Mr. Kuehne:—I am very sorry to hear that the queens were superseded. I think you are right. They evidently got injured in the mails. They were bunched together, three cages in a bunch, when I mailed them; and, as they were single when they reached you, they must have been in a "smash-up." I will replace them free of charge the last of June or the first of July. I have as many orders booked as I can fill by the 10th or 15th of June. Many thanks for your kind words. J. P. MOORE.

Morgan, Ky.

CUTTING ALFALFA AFTER IT IS IN BLOOM.

I enjoy noting the editor wrestling with the alfalfa-cutting question.

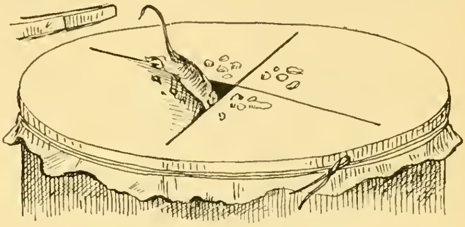
There is hope for the bees and owners, because there are likely to be behind time alfalfa-cutting harvesters. The best time here to cut alfalfa is right after it begins to bloom: and every day it stands after that is so much better for bees. Alfalfa honey is very scarce in our hives on account of this condition. M. D. NICHOLS.

Escondido, Cal.

[The hope of the bee-keeper in the early-cutting regions will rest largely on the tardiness of the mower in cutting some of those large fields. Mr. H. D. Watson, the man who has 3000 acres of alfalfa at Kearney, Neb., said to me when I spoke of this matter. "Don't you worry at all. The early cutter in theory will always be late. The result is, he will cut his alfalfa late rather than early. Even if he believes in early cutting he will generally practice late cutting." Now, whether this is so or not throughout the irrigated regions, I do not know. But knowing human nature as I do, that farmwork is usually behind, I should assume that the alfalfa-grower would let his crop get into bloom before he did much cutting.—ED.]

A RAT OR MOUSE TRAP.

I am illustrating herewith a trap that may be useful for bee-keepers. It can be attached to a deep crock or barrel, or any box round or square, whichever comes handiest. Take a piece of heavy stiff springy paper; slightly dampen it, then adjust to crock or barrel, and tie down securely by twine. Let the paper then dry; and, if desired to be kept, give it a coat of shellac or any other oil or varnish. For a few days put bait in the center of the paper, within easy access of the victims; then remove the bait and cut paper along lines shown, and glue bait to apex centers, and the trap is ready, self-adjusting, and will do the business. Vermin caught can be destroyed by water in which they plunge, or by fumes. R. V. MURRAY.



Cleveland, Ohio.

[Mr. R. V. Murray is our regular artist, and takes a great deal of interest in every thing that pertains to bee-keeping. Knowing that rats and mice are enemies to bees, and nuisances to the bee-keeper, he sketched this simple mouse-trap that any one can make. I do not know whether the idea is original with him or not. I think I have seen it somewhere; but it is good, nevertheless. The trouble with ordinary traps is that, after they are once sprung, they are useless till reset; and, besides, when they do catch a mouse it must be taken out or there will soon be a foul odor. The trap shown in the illustration resets itself as soon as it has done its work. If one will put a strong solution of brine in the crock, the victims will be pickled as soon as they are caught, and there will be no smell. After the vermin have all been caught, the string can be loosened, and the contents of the crock dumped and buried. I have one of the regulation mouse-traps in my office; and every now and then I can detect a familiar odor, and then look down at the trap, back of my desk; because, you see, I forget all about the trap until my olfactory nerves apprise me of the fact that something is wrong. Then I have to get the nasty carcass out of the trap, and reset.—ED.]

MOLDY COMBS GNAWED DOWN.

On page 155, in reference to bees biting off the cells of combs, I would say I have had old combs that got moldy on part of the combs, and I put them in hives where there was a new colony of bees, and the bees went at the old moldy combs and cut them away down to the bottom of the cells, and they did not build the cells out again. But when the comb was not moldy the bees did not disturb it at all. C. K. CARTER.

Eagle Grove, Iowa.

[If the bees had needed more room they would have built out those gnawed-down combs; and if they have not done so already they will do so yet when the honey season opens up.—ED.]

GOOD WINTERING IN A DAMP WET CELLAR; VENTILATION, DAMPNESS, AND TEMPERATURE CONSIDERED.

I took my bees out of the cellar March 20, and find them in fine condition — only one dead colony out of 183. The bees are bright and healthy, and in remarkably good condition. I am a firm believer in taking bees from the cellar as early as possible, the benefit of which I have proven by my own experience in the past. The condition of my cellar was such that almost any one would condemn it for the purpose of wintering bees; but notwithstanding I never had bees winter better, either outdoors or in the cellar. My cellar is built in a clay bank with about three feet of dirt over it, and this dirt is covered with a shingled roof. It is 8 ft. wide, 28 ft. long, and 6½ ft. high, with two doors in place of where Doolittle has four. The past winter, it has been exceedingly damp, with some water actually standing on the cellar bottom. It has always been said that one of the most essential conditions of cellar wintering is that it be practically dry; but I have just wintered my bees in fine condition with the reverse condition. It would also be considered that I put almost too many bees in a cellar of that size. The cellar is provided with two ventilators—one that opens at the bottom of the cellar, admitting fresh air, and the other opening at the ceiling, and both go directly up through the roof, with cap at the top to prevent light from entering. This cellar has maintained almost an even temperature all winter. The thermometer registered just 52° all winter, until just before I took them out, when it went up several degrees. The stores which the bees wintered on were largely fall honey, although there was more or less clover honey in most of the hives.

I have come to the conclusion that so much dampness in a cellar is not so disastrous after all, if the temperature and other conditions are all right; and I write this that others may draw their conclusions.

Marion, Mich. R. S. CHAPIN.

[I think it is generally conceded that a cellar may be reeking with dampness, and yet give good results in wintering, provided other requisite conditions are present. One of those conditions is uniform temperature, and a reasonable amount of fresh air; but our friend Doolittle, who has had a good many years of experience, and ought to know, believes that, with uniform temperature, ventilation is not essential, for his cellar is kept closed from fall to spring, except, perchance, the few times when he goes into the cellar to make examinations.—ED.]

QUESTIONS REGARDING THE PRODUCTION OF COMB HONEY.

1. Is it better to remove supers, or the honey from them as they fill, and replace them, or to add other supers, thus tiering up?

2. For comb honey, is it proper to use full sheets of foundation?

3. Does the foundation mar the taste of comb honey? T. F. RAWLINS.

Elk Creek, Cal.

[1. A good deal will depend on whether you have many supers to remove. If the season is very slow it may be advisable to take off the filled sections one by one, substituting empty sections in their place. But in large apiaries it is the usual practice to remove the whole super. If the super is not quite filled, and honey is coming in well, raise it up and put an empty super under it. If the season is toward its close, put the new super on top.

2. If you wish to get the most honey in a given time, we would advise using full sheets of foundation.

3. No. But combs built off from foundation have a slight midrib that bee-keepers can detect or notice if they think of it; but the general consuming public never thinks of it, and won't if we don't call their attention to it.—ED.]

SOMEE USEFUL DEVICES; A HANDY SCRAPER; A UNIQUE FOUNDATION-CUTTER.

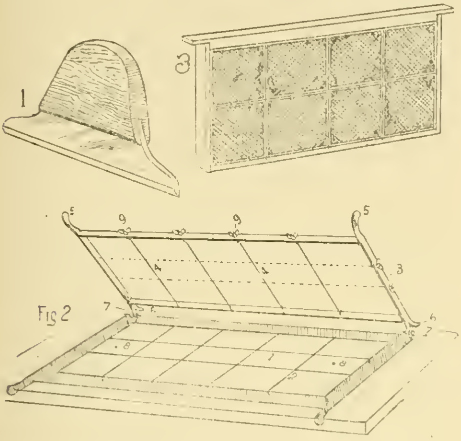
The enclosed sketches are my own ideas, and I use them successfully. I have not seen any thing in GLEANINGS or elsewhere that can do what each one of the tools here shown can do in the same time. No. 1 is a hive and bottom-board scraper. It is a piece of glass cut in shape as shown, with a piece of hard wood for handle, with saw-kerf in to hold the glass. It beats any kind of steel blade. I use its sharp end for scraping sections also.

No. 2 is my instantaneous foundation cutter. It cuts a pound of wax into any size, sheet, or starter, or both, at the same time, *absolutely true*. Any child can operate it by placing the sheets of wax on the block of wood, pulling down the frame. The cutting is done by the wires. The block is hard wood, with saw-kerfs in to correspond with the wire that cuts the wax. The dotted line around the table or block is a rim for the cutter-bar to rest on when down to prevent breaking wires. The wires are on a loop-shaped hook with thumb-screws for tightening wires.

The frame is made with a groove all around, and the wires are set to correspond with the grooves in the block; for whatever size the operator wishes strips for starters in brood-frames can be cut also, if desired. The frame is made by bolting two pieces of steel together, leaving space all around for setting wires, and hinged on to the block, at each corner.

No. 3 is a plain frame, made to hold eight sections, 4¼ × 4¼, and used for feeding unfinished sections to bees in the cellar that are short of stores, by removing one or two frames. This is put in place, and bees are not disturbed. If not needed for feeding they can be put in the extractor the same as brood-frames. This is better than stacking up supers and letting bees clean up, as you get it where needed, and can feed it any time. To put sections in the frame, loosen the top-bar; when in, drive nails to hold firm. A. A. CLARKE.

Le Mars, Iowa.



No. 1.—Block of wood with saw-cuts therein, corresponding to wire in frame 3.
No. 2.—Saw-cuts; can be made in any direction, and crossing each other at any point, same as the wires in frame
No. 3.—Iron frame, with handles 5–5 and stops 6–6, provided with strung cutting-wires 4–4 and thumbnuts 9–9 for tightening wires.
7–7.—Hinges with bolts on which frame moves.
8.—Screw-holes to secure block or machine to table.
The machine consists of the iron frame, necessary wires, thumb-nuts, block of wood for foundation, screws, 2 small bolts for hinges.

[All three of your devices are excellent. The frame for holding the sections is simply the application of an old principle of the wide frame when comb honey was produced wholly in such frames in full-depth supers. The scraper is very simple and cheap; but would not the glass become dull very soon? and would it not be just as well to use pieces of glass without handles and throw them aside as soon as they are dull? A wooden handle would be more convenient, it is true, but it would be a rather nice job to put the piece of glass into the handle, for the simple reason that glass varies in thickness; and a saw-kerf that would just fit one piece would be all wrong for the next.

Your scheme for cutting foundation is very unique. I would not have supposed for a moment that a wire, drawn however taut, could be shoved through a whole pound of foundation, leaving a nice clean-cut square edge. If it will do this in every case, without breaking the wires at annoyingly frequent intervals, we have a device that could be used to very good advantage by every bee-keeper. We will endeavor to give the idea a trial ourselves. In the mean time we should be pleased to have reports from those who can test it.—ED.]

QUEENS BALLED; SUFFOCATED OR STUNG TO DEATH.

After reading Stray Straws for Mar. 15, p. 224, I'm of the opinion that you did not quite strike the key-note when you say, "But haven't I seen stings lodged in the body of a balled queen?" No, Mr. Editor, bees never leave their stings in a queen or drone, neither do they leave their stings when stinging other bees to death. I believe I wrote you a short time ago that queens are never stung while being balled. It is true that a queen is worth less, as a rule, after once being balled; but she meets her death through suffocation and starvation. I once saw one queen sting to death 7 queens, and the first queen was stung 7 times, held off at arm's length. For just cage a queen and put in a bee from another hive, and watch results. You will never find a sting left in the one killed.

Matanzas, Cuba. C. E. WOODWARD.

[Perhaps you have stated the general rule; but I am very sure, for I remember the circumstance, that I took one queen out of a ball that had a sting in her body. The fact was strongly impressed upon my mind at the time. I have spent some five or six summers rearing queens in an apiary of 400 nuclei. My chance for seeing the exception that proves the rule was good. Isn't it another rule that has come to be accepted, that bees never *invariably* follow a precise rule?—ED.]

PARAFFINE PAPER FOR COVERING SECTIONS IN THE SPRING.

What is best to place over the sections to keep them clean when in the supers over the bees? I used the Danzenbaker paraffine mats, but the bees eat them badly. I don't know why — possibly "location," or possibly "starvation," or possibly a mischievous inclination; but this I know, it is "an abomination," and I should like to know what others use. A. J. KILGORE.

Bowling Green, O.

[We regret to say that the paraffine paper did not prove to be a success, largely for the reason that the directions were not in all cases carefully followed, where it was stipulated that old newspaper, or some other packing of some sort, should be crowded on top of the sections; and even when the packing was put on as directed, some bees would gnaw the paper. Mr. Danzenbaker has abandoned the paper now. We had not ourselves advised putting any thing over the sections except the super-cover or hive-cover, and this should be a bee-space above the sections.—ED.]

BEE-PARALYSIS; IS SULPHUR AN APPARENT OR REAL CURE?

I believe bee-paralysis is just as contagious in the South as foul brood in the North. I first noticed the disease in my yard in July, 1902. It reduced the one colony to a mere nothing, which I placed with another colony for winter, when the trouble stopped until this spring. When young bees began to hatch, the disease promptly broke out in 14 out of 30 colonies, many of which at this date are weaker than they were in January, while colonies not affected have begun swarming.

I read Mr. C. H. Pierce's article in Gleanings for Feb. 15, page 160, recommending sulphur as a cure for paralysis, which he claims he obtained through Gleanings by Mrs. Hawkins. He (by error) states that in two weeks the *bees* had entirely disappeared, which was corrected on page 185. Now for the other part of my story. Not wishing to lose my bees entirely by a roundabout way by using sulphur when fire is cheaper, I decided to try it on a small scale. I sulphured bees, combs, brood, and all, on three hives. Result, one week after, very few bees dying; some sealed, and some larvæ just hatched. Second dose, second week, same condition, only less sealed brood. Third week, disease gone; sealed brood gone, small amount of larvæ; very few bees (cured). Now, will they stay cured? I think not, and why? The machine has simply stopped for lack of fuel. When there is more hatching brood, the disease will take fresh hold. If this is not correct, why does it stop with brood-rearing in the fall, and begin with it in the spring? Sulphur destroys only the culture and not the disease. I don't wish to contradict Mr. Pierce, but I don't think he saw far enough. But if he is right and I wrong I hope you will apologize for me when he comes through Ohio. I can only plead ignorance. G. B. Crum.

Pearson, Ga., Mar. 23.

[When you speak of sulphuring your bees in combs, I assume that you mean sprinkling the yellow powder on the bees.

As you surmise, many diseases that are contagious — perhaps all of them — have what may be called the inert and active state. There are the spores and the bacilli. The former would probably not be affected by any cold application of sulphur; but the latter might be killed by it. As long as the *spores* are not destroyed the disease may reappear.—Ed.]

BEE-PARALYSIS; STRONG BRINE AS A CURE.

Much has been said from time to time in Gleanings about bee-paralysis, its cause and cure. I see on p. 720, Sept. 1, that so far there is no cure that has ever been named for it. Paralysis is not very prevalent here, although I have seen several cases where bees died outright with it. I will now give my experience with it, which I hope may be beneficial to my bee-keeping friends, although you may think this a simple remedy, and it is; but I have made a permanent cure in every case that I have treated with it.

In 1900 I had two colonies of bees strong enough to begin storing honey in the supers, on fruit-bloom. About that time they were taken with paralysis very badly, and at the beginning of white clover they had left the supers, and I took them off, and they were dwindled down to less than half their numbers. There were quarts of dead and dying bees in front of the hives. Then I looked them carefully over, and found more brood than the bees could actually cover. The queens were bright and active, and the brood looked all healthy; but they were now going down rapidly. I made up my mind to kill or cure them by experiment, and this is what I did: I went to the pork-barrel and took out a dish of strong brine. I went to one hive, opened it, took off the cloth on top, took a wisp of fine grass, dipped it in the brine, and sprayed them all over the top of the racks quite freely, then the entrance of the hive, and all the sick bees in front several feet around, and closed it up again. Then I repeated the same operation with the other, and watched the result. In three or four days I saw a marked difference with both colonies. There were not half as many sick bees, so in four or five days from the first spraying I repeated the operation, and in two weeks after the first spraying there was not a sick bee to be found in either colony, and it has never returned.

As foul-brood inspector I have found sev- other cases, bad ones too, that I have treated in the same way, with perfect success in every case. In 1901 I had two more of my own (mild cases). I treated them separately, one at a time, to see if my test was all right, and it was as before. These two first colonies that were so bad gave me one super of 28 sections on the windup of white clover. I intend to experiment more with this, and in a little different form. It may prove to be of some value to bee-keepers, and it may not. It certainly has with me, so far.

A question arises in my mind—will this have the same effect on bees in a southern climate it does here in Michigan? Let them test it and report. Bees must have plenty of salt here. I salt mine about once a month during the breeding season. Where they get water for that purpose it keeps them healthy. This is what led me to try the brine-spraying process. After this has been tried by those troubled with bee-paralysis I should like to have them report through Gleanings. A. H. Guernsey,

Pres. Ionia Co. Bee-keepers' Ass'n.

Ionia, Mich.

[We have had reports before, to the effect that salt would cure bee-paralysis. We have also had others to the effect that it was an absolute failure for the purpose. But it may be that spraying the bees and combs with a strong brine solution would be more effective. I should be glad to hear from our subscribers who are afflicted with the disease in their apiaries; for the treatment prescribed is so simple, and so easily applied, that it would be well to try it. Bee-paralysis is apt to be in a good many localities in the United States, and we ought to have in the neighborhood of 25 or 30 reports during the summer.—Ed.]

THE PROMINENT BEE-KEEPERS OF CUBA; THE DANZENBAKER HIVE FOR COMB HONEY.

Mr. G. E. Moe is still alive, but looks and limps around "ghost-like" after his thousand booming colonies. *Health all gone.* And the American tramp? Big apiaries booming, and he "down in the back" and the honey wasting.

F. O. Somerford, another thousand-hive man—where was he? Gone to the States for for his health, after rustling so many bees for so long; and I could name a few more. But I shall have to mention seeing two of the big lights that create and distribute ideas—not the "common Sam Slap" kind either, but solid "facts about bees," facts that cost money to know. Mr. Danzenbaker, of hive fame, was one of the gentlemen, and I am sure that his coming to Cuba will help the comb-honey business here in quality and quantity, as there is not another man on the globe who is so well up on comb honey as Mr. D. is — no, not one. To know him and his hive is assurance enough that it is the best comb-honey hive in the world—none excepted. His hive, not super, I have always classed with the Heddon; but I am sure now that it is the only real thing for comb honey—real nice comb honey, I mean. The super to it I have known all the while could not be beaten, so I have a thousand of them on hand, but had tested only a few of his hives—a pair—and they have the most comb honey to the hive, or more than $3.00 to the hive ahead of the rest of the best hives in the same ranch, although not the strongest colonies. So I will say truthfully, "Danz. hives" for comb honey, first, last, and all the time.

The other gentleman is a man from Russia—a college man, an engineer, draftsman, etc., but a thorough pencil artist, schooled in bee culture in Russia, with many years, and moves to his credit in America, east, west, and south. He is just over from Florida with a boatload of bees, 300 colonies, and is temporarilly located at Cabanas, on the north coast of Cuba, with his real American tramp hive, and goes again to Florida for mangrove bloom in May.

The features of his hive, after sketching and trying them by the dozen, are many; combination comb and extracted-honey hive, queen nuclei included in the hive (same hive) along with wax-growing department; and for a tramp hive it's always ready with extra queens, as well as other good features. But I am of the opinion that by the time its inventor, Mr. Patrin, gets a thousand or two of them on the road at the same time, he, too, will come up missing, as captain, and then what? W. W. Somerford.

Caimito, Cuba, Jan. 4.

[I will explain that the foregoing came, as will be seen by the date, some time ago, but it was mislaid. As it contains some facts of interest we place it before our readers, even at this late date.—Ed.]

PREVENTING SWARMS FROM MIXING; THE M'EVOY SHEET PLAN.

As I read about McEvoy's plan for stopping the outcoming of two or more swarms at one time, and mixing together, in the April 1st issue of Gleanings, and that you wished to hear from others who had tried this plan, I will say that I have practiced this plan for the last three years, and it has worked satisfactorily.

I use an old quilt or blanket, which I keep handy for this purpose; and as soon as two hives show signs of swarming at the same time I put the quilt or blanket on one of them, putting bricks on the corners of it to keep it down; and as soon as the other swarm is hived I take it away. It sometimes happens that the hive covered will swarm within half an hour again. I think it is a good plan, and one that saves both money and work, and a plan well worth trying. G. M. Hanson.

Christine, N. Dak., Apr. 7.

RAISING QUEENS IN UPPER STORIES; HOW TO TELL WHEN THE BEES ARE SUPERSEDING THE QUEEN.

Can a good queen be raised from the queen-cells that are raised by the bees in the super above the honey-board? How can you tell when a queen is being superseded?

Manhassit, N. Y. J. Schneider.

[Good queens can be and are raised in upper stories; but very possibly when the queen-breeder would like to get the cells reared upstairs the bees will not carry out his wishes. A prosperous colony in the time of the honey-flow, or if fed a little every day, will usually rear cells in the upper story, without trouble; and the queens from such cells are equal to the very best. But the bees must be given cell-cups supplied with royal jelly and larvæ.

When a queen is about to be superseded you will usually find cells started in the hive. She acts more or less feeble, and lays sparingly. If the hive is left to itself, the next thing you will see when you examine it again will be the old queen missing, and the young one doing service in her place.—Ed.]

EXCLUDERS; PUTTING THE ROUGH SIDE IN FOR THE CONVENIENCE OF LOADED WORKERS.

I want to call your attention to an idea that came to me within a year, in regard to excluders. If you use reason you will see that bees can pass through loaded the same way the zinc is punched, better than from the opposite way. Now, isn't this the cause of complaint that bees do not work as well through excluders as without? It seems to me very certainly the reason. It seems strange, too, that, as there have been so many fine points brought out, that this has never been thought of; and as there are thousands of excluders made, regardless of which side is up, it is of great account. Of course, part happen to be right.

I desired to call your attention to it, feeling interested for all. I would by all means put it smooth side toward the loaded bees, whether whole sheets or in strips between wood.

I use excluders wholly for both comb and extracted honey. I got 1000 lbs. in one rainy and cold season (from 7 colonies, spring count).

Hallowell, Me. E. P. Churchill.

[We have for years made our Alley drone-excluders and honey-boards so that the smooth edge is presented to the in-coming laden bees. It is barely possible that occasionally a trap or a honey-board might be sent out with the zinc put in the wrong side to.—Ed.]

STERILE QUEENS AND SUPERSEDURE.

If an old queen gradually, in spring, say May or early June, becomes sterile, what is the natural procedure of the workers? Will they of their own accord start queen-cells when they find she is fast becoming useless, or will they wait till it is too late? If they choose the former method, what becomes of the old queen?

Charles A. Crowell, Jr.

Winthrop, Mass., Mar. 24.

[When queens begin to fail through age, or from injury, the bees will usually start the building of cells before they give out entirely. Of course, it may sometimes happen that, before such cell-building begins, the old queen may die. In that event, so long as there is larvæ old enough, cells will surely be raised. If they raise cells before she fails, and a young queen is hatched out, the two may be allowed to exist in the hive side by side without interference. But this is the exception. As soon as the young queen appears on the scene the old one as a rule steps down and out. Whether mortal combat takes place, resulting in a victory for the young and strong, or whether the bees themselves take matters into their hands, and kill the old queen, I can not say. Perhaps Doolittle, or some or our veterans, could tell just what is done.—Ed.]

FEEDING BEES WITHOUT STIMULATING.

My bees are rearing brood, and have consumed nearly all of their honey. What and how can I feed them so as not to excite the queen to more vigorous egg-laying? Do bees ever rear brood if no pollen is in the hive? R. T. Wisterman.

Gasport, N. Y.

[Give your bees some combs of sealed stores. We make it a rule, every fall, to set aside a good supply of such combs. In the spring, when it is too cold to do much feeding, we insert one of these combs in the brood-nest.—Ed.]

MORE TECHNICAL AND SCIENTIFIC AND LESS ELEMENTARY MATTER CALLED FOR.

I would rather miss any part rather than that called "General Correspondence." and wish there were more of R. C. Aikin, and also more by that other Miller—Arthur C., whose very didactic way of speaking did not prevent his remarks from being very suggestive and interesting. The way of having each article followed by an editorial comment I particularly like. It sets one to thinking in a very lively way to compare the two points of view, and consider which is nearer the truth. Geo. A. Bates.

Highwood, N. J.

YOUNG'S METHOD OF WIRING FRAMES; A CORRECTION; DEPARTMENT OF QUESTIONS AND ANSWERS LIKE A BIG CONVENTION.

You get the wrong idea from the wiring-board on p. 247. Mr. Thwing, on p. 236, gives my idea, but in a little different way; that is, to *not* get too much loose wire off the spool at once. He begins in the middle of the frame, and has to lose 2 in. of wire on each frame, making 83 ft. of loss on 500 frames. The tension is only to hold the wire, and not to make it tight in the frame, as you say. See my cut again. Put the wire through 1–1, and then pull through far enough to go back through 2–2; then put it through 2–2 Now the trouble is at hand. Hold the end of the wire in the right hand, and pull the wire through 1–1 with the left hand, working both hands simultaneously until you have enough wire through to make 3 and 4, and some to spare; then you have at no time no more loose wire than does Mr. Thwing This board can also be fitted up for putting in the foundation without moving the frame.

Mr. Editor, I like your department of questions and answers. It makes me feel as if I were at a great big convention, and you were chairman. Let more write and tell what we know, and let Mr. Root weed it out, but, as Dr. Miller says, "respectfully." That is right, Mr. Editor. Hold a tight rein on the doctor. When old horses do run off they do more harm than the young ones do, for they usually take the whole family with the old horse. But do not let Dr. Miller drive you through every mud-hole. A. P. Young.

Cave City, Ky.

NOTES OF TRAVEL

BY A. I. ROOT.

RAMBLER AND HIS APIARY.

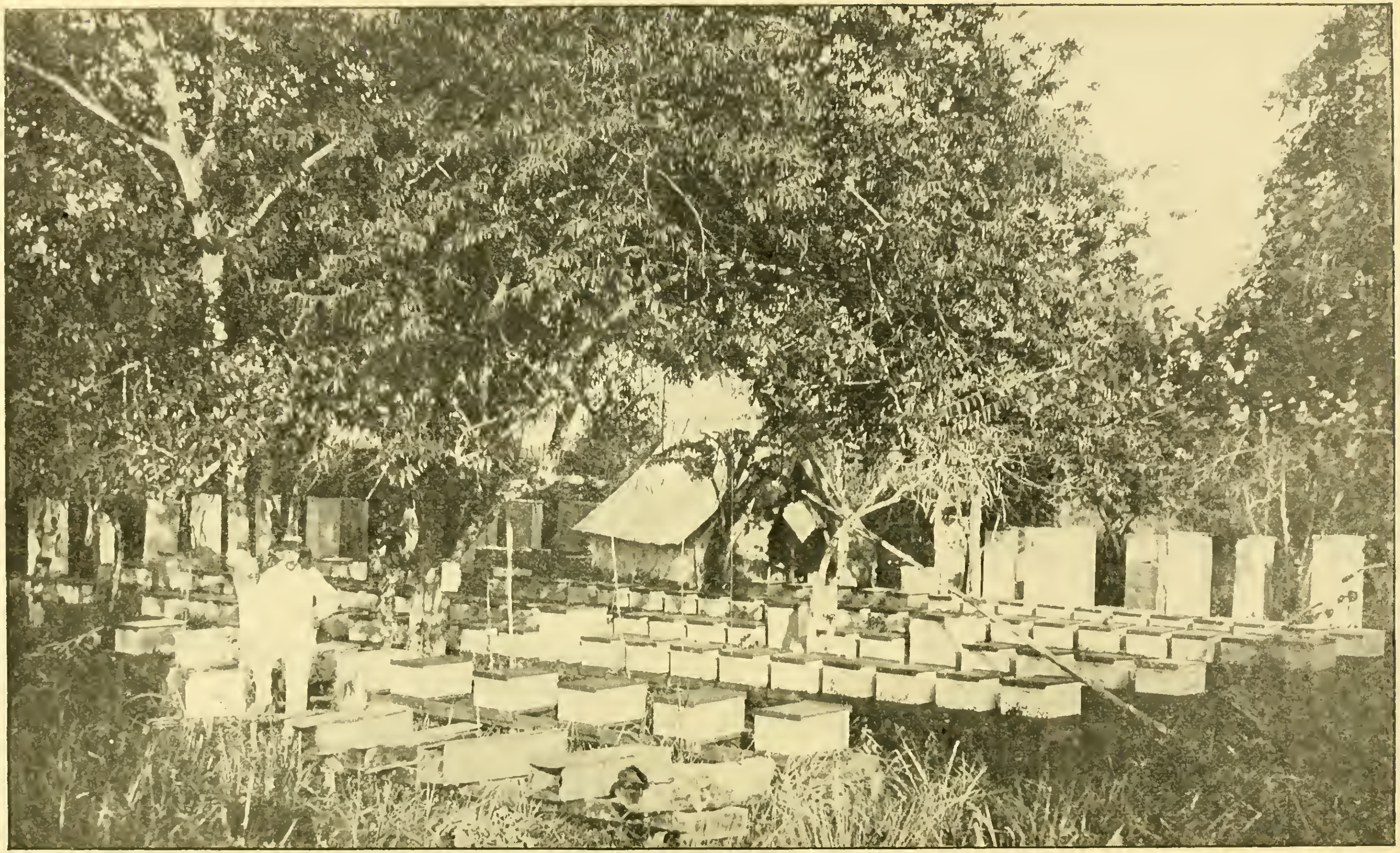
On my arrival in Cuba, about Jan. 1, one of the first things I asked about was something concerning Mr. Martin, his location, etc. Mr. de Beche informed me that Mr. Martin was sick, and had sent him word that he was going to one of the city hospitals, and that, on receipt of such word, he had phoned to every hospital in the city and they declared that no such person had been there. Mr. de Beche therefore concluded the Rambler must have got better, and that I would find him at his ranch in Taco-Taco, near Paso Real. I accordingly made a trip to our apiary. After I reached there, however, Mr. de Beche wrote me that Mr. Martin *was* in the city after all, and that, after reaching the hospital, and not getting better, he wrote to Mr. de Beche to come and see him. Mr. de Beche, with that letter in his hand, went to the hospital Mercedes, but was again told there was no such person there, but he finally succeeded in reaching him. Either the people at the hospital had got things mixed or else Mr. Martin, when he reached there, was too sick to write his name plainly. His death came very suddenly, as you have been told by friend Danzenbaker on page 99, Feb. 1. After his death I went to that same hospital, accompanied by Mr. Danzenbaker, and had an interview with Miss Anna E. O'Donnell, who took care of Mr. Martin while he was there. This lady informed us that Rambler talked but very little. He was too sick. She said the doctors pronounced his disease pernicious malarial fever—a kind of fever that takes patients off very suddenly. Before he died, when some of the friends were visiting him he tried to talk to them but was too weak. One of them gave him a pencil and some paper, and he wrote a few words that could hardly be made out, and then gave it up, being too sick to even write.

This hospital is one of the finest in the city, if not the best, and has every appliance, apparently, for the care of the sick. In fact, it is the best-arranged institution of the kind I ever saw. In my conversation with the nurse I was satisfied that they employed the best medical skill, and that all their arrangements are clear up to date for the care of the sick.

Some time afterward I visited Mr. Martin's apiary at Taco-Taco, and had quite a talk with Mr. Gilson, the young man whom Mr. Martin employed a short time before his death. The apiary is located but a few rods from the station, and in a thicket that, in wet weather, would be a wet swamp. It is, without question, an ideal place for bees; but it certainly is not a very good place for one to live in, especially when the swamp is full of water. Mr. Gilson (now in charge of the apiary) tells me that they were advised to get their water at a well in the town, or drink boiled water. I believe Mr. Martin did this for a time; but when they were hurried with business, and quite a stream was running close to the apiary, they got their water from that stream, and Mr. Martin drank of it freely. The water was so high in that locality that it got into their honey-room, and they were obliged to set their hives up on stands to keep the water from running into the entrances. Poor Rambler became so much interested in the wonderful progress he was making in building up an apiary that he doubtless not only neglected his drink, but I fear, from what I am told, he neglected to take the necessary time to prepare wholesome cooked food. Of course, we do not mean to find fault nor criticise our poor friend who has now gone from us; but it may be well for the *living* to consider and take heed. I for one would not keep my health very long unless I had good wholesome food at regular hours. I have tried "cold victuals" several times in my life; and while that does very well for one or two meals it does not pay as a rule, at least, to follow it up.

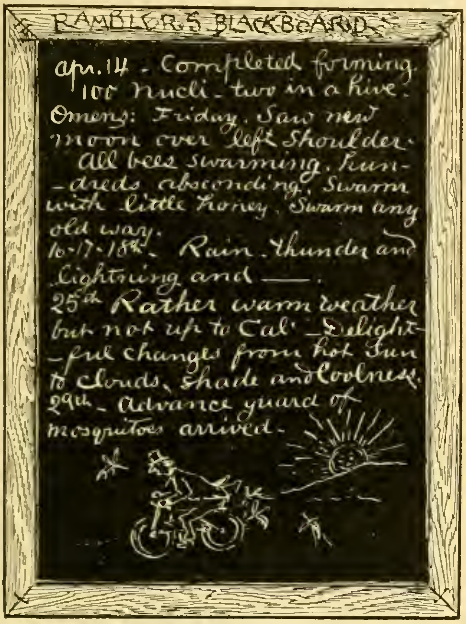
Let us now consider a little why Mr. Martin was so busy. When he first came to Cuba last April, he stopped with our good friend Mr. Glenn Moe and his wife at Candelaria. His rations there were of the best, as I happen to know by personal experience; and Mr. Moe and his wife very much enjoyed having the Rambler an inmate of their home. His first venture was to agree with Mr. Moe for 100 three-comb nuclei—two combs of brood and one of honey; and in consideration that Mr. Martin would furnish every thing in the way of hives and fixtures, he got the nuclei at the low price of $1.50 each. This was all that Mr. Martin had for his start, with the exception of five Cuban hives made of hollow logs. You will notice these in the picture on another page. He selected a locality close to a railroad station, and right in a swamp, or woods where flowers were plentiful and laden with honey. Since the sad outcome of this undertaking, it is very easy for us to say, "Why didn't he go a little further from the station, on the bank of the river where high water could not make his ranch so wet?" We do not just know *how* he managed to build up those nuclei; but we *do* know that at the time of his death there were very nearly or quite 300 colonies of bees, a great part of them filling two-story hives, and that he had taken 16,800 lbs. of extracted honey and 3½ tons of comb honey. This is certainly remarkable. Not only did these bees work with a vim, but Mr. Martin must have worked early and late, and left no stone unturned to break the record in the way of building up an apiary in an astonishingly short space of time, at the same time securing a crop of honey that seems almost beyond belief.

I very much regret that our people here



AN UNPUBLISHED PHOTO OF THE "RAMBLER" APIARY AT TACO-TACO, CUBA; TAKEN BY MR. MARTIN HIMSELF IN JULY LAST; MR. MARTIN STANDS AT THE LEFT IN THE FOREGROUND.

in Medina, by a blunder, made a statement on the cover of our bee-keepers' catalog, to the effect that he commenced with only 50 nuclei. Mr. Boyden, who furnished this item, says that, as nearly as he can remember, he understood Mr. Martin himself (while he was in Cuba) to say that he had only 50 nuclei. It may be interesting right here to look again at that slate shown on page 469, June 1st.


RAMBLER'S BLACKBOARD

Apr. 14 – Completed forming
100 nucli – two in a hive.
Omens: Friday. Saw new
moon over left Shoulder.
All bees swarming. Hun-
-dreds absconding. Swarm
with little honey. Swarm any
old way.
16-17-18th – Rain. thunder and
lightning and ——.
25th Rather warm weather
but not up to Cal' – Delight-
-ful changes from hot sun
to clouds, shade and coolness.
29th – Advance guard of
mosquitoes arrived.

RAMBLER'S SLATE OF ONE YEAR AGO.

The above tells us that he started with only 50 hives, but there were two nuclei in each hive. It also reveals another interesting fact: That notwithstanding this tremendous feat in increase of honey, a good many swarms went to the woods—he says "hundreds;" but this was, of course, only a sort of hyperbole or pleasantry. Is it not possible that those same mosquitoes he pictures (some of them puncturing his bicycle tire) were the ones that laid the foundation of the fever from which he died?

We must keep in mind that, in tropical countries like Cuba, there is no winter to hinder rapid work; in fact, there is scarcely a day in the whole year when one can not go right along rearing queens and taking in the honey. I presume Rambler made no effort to keep his colonies pure nor to raise his queens from any special strain. I know this—that his bees were rather cross when I attempted to go around among the hives, even though honey was coming in at a pretty good rate. Mr. Gilson has taken from the apiary a considerable amount of both comb and extracted honey since Mr. Martin's death; but I have not yet received an account of how much.

Now, friends, while we bend our energies toward securing great crops from any of these wonderful gifts from the hand of the loving Father, let us be careful about overtaxing these bodies of ours by taking risks. We read in holy writ, "What shall it profit a man if he shall gain the whole world and lose his own soul?" Of course, this text does not apply to the case in question; but we may, perhaps, put it a little differently: "What shall it profit a man if he shall gain the whole world and lose his health or possibly his *life*?"

A CORRECTION—"CARLOAD" FOR "CARTLOAD;" ALSO SOMETHING ABOUT OVERSTOCKING.

On page 293, second column, the word carload is used where it should have been cartload. Instead of getting it "right to a *t*," as the old saying is, we got it "wrong to a *t*." Friend Hochstein objects to this, as I felt sure he would as soon as I saw it. I was away when it went to press. Here is what he says about it:

Mr. Root:—If I do not want to be crowded off my present location I shall have to take either A. I. Root or his printer to task, and call for a correction of that article, p. 293, which says I take a "carload" of honey in every time I go to the station. It should read a *cartload of two barrels.* The reason I did not want to tell you what my crop was is that it fell far below the average I had set. I have already had two letters asking for locations here since your article appeared. I inclose you a piece of one, which speaks for itself. Here it is:

> Please accept my congratulations for having won Mr. A. I. Root's biggest and best praise; and, by the way, as I am now preparing to put in another apiary, it's no more than natural that I should wish to secure a location where it is possible to haul in a carload every time, and no other territory is represented to me to equal that of famous Punta Brava; and I'd like to strike the country before that storm of bee-keepers arrives which Mr. Root has called forth. P. T. O.

Those who write to me first, I am not afraid of. I can discourage *them;* but such as come and rent land, and put bees on it before one is aware of it these are the ones I fear, and there are plenty of such in Cuba.
Punta Brava, Cuba, Apr. 16. C. F. HOCHSTEIN.

While we are on this subject, here is another letter that came from Cuba in the same mail:

Mr. Root:—I have just finished extracting honey at my home apiary at Guanabana, and have now taken 34 tierces of honey from 200 hives, or 250 lbs. per colony. I am looking forward to the time when you and I can have some good long talks together on producing large honey crops in Cuba. This is probably the largest honey-record made in Cuba this season.

Haven't you wished yourself back in Cuba? Well, Catara Real keeps on talking just the same, and I often think that she and Somerford should live together.
Guanabana, Cuba, Apr. 16. C. E. WOODWARD.

Perhaps I should explain that friend Woodward is in company with a wealthy man who is interested in sugar-cane, and who has control of the territory for miles around. No bee-keeper nor anybody else can plant an apiary within the range of his bees' flight without the knowledge and permission of his partner. And, by the way, the Havana *Post* just informs us that our good friend Moe has made a purchase of *three thousand* acres of land. Of course, I do not know; but the idea will keep suggesting itself that Mr. Moe wants things in such shape that his territory can not be invaded in the way friend Hochstein suggests, without his knowledge and consent.

MAPLE-SUGAR MAKING.

From Cuba to Northern Michigan may seem somewhat abrupt; but the last of March found Mrs. Root and myself once more at the "cabin in the woods."

Around said cabin, on the hillside and in the valleys, are perhaps 100 maple-trees; and as our maple-sugar book has been out about 17 years, I decided it would be nice to make a test of all the modern appliances for the convenience of the maple sugar and syrup maker. The Champion Evaporator Co., of Hudson, Ohio, said they could fit me out with a small apparatus, combining all the modern improvements, for about $45.00; and on the 27th of March we tapped our trees, set up the machinery, and set a carpenter at work making a sugar-house over it. In just one week the house with all its appointments was done, and our whole outfit was snug and secure from the weather. The man who built it is only a rough carpenter, and was glad to do the job for $1.75 per day; and as it was all made of cheap lumber ($10.00 per 1000) the expense was not over $25.00 or $30.00.

I at first planned to carry my sap from the trees on the hill down to the sugar-house in iron pipes, and we may do this yet; but as the trees are pretty well scattered, some on low and some on high ground, I decided to carry the sap by hand until we found out better what was wanted. I did some studying before locating the boiling-place. If the ground is level, or nearly so, the camp should be in the center of the cluster of trees; but *several* things must be considered. First, we wish to avoid carrying sap uphill—better have the camp a little lower than the trees, even if you walk further. Again, as it is dangerous to leave an expensive apparatus (even if it is automatic) very long by itself, it is well to have it near the dwelling, even if this brings it off at one side of the trees. Ours is right in plain sight of the back door, at the foot of a ravine, well sheltered from rough winds and storms, and lower than most of the trees. One of my first jobs was to make convenient paths to the trees, and to have these paths so arranged as to have a *regular route*, and at the same time save all unnecessary steps. I hardly need say that, as a rule, the most distant trees should be visited first, that we may never carry any sap *away* from the camp, then have to carry it back over the same track. These same rules will apply mostly to gathering with a horse or horses, as well as to gathering by hand.

The sap is first poured into a galvanized storage-tank. This material is all right for *cold* sap, but should never be used for hot sap, or hot syrup or sugar. Even if the pails are covered, it is best to strain the sap into the storage-tank. We do this by pouring it into a bag of cheese-cloth. This bag is held open by being sewed to a hoop, the hoop being supported a little below the upper edge of the tank. The automatic apparatus that regulates by a float-valve the flow of sap into the boilers works complete. When boiling rapidly, a good-sized stream of sap can be seen flowing from the valve; but as soon as the boiling slackens, this stream closes down, so the sap in all the boilers stands at one uniform height; and the machine can be adjusted so as to keep the level at one inch, two inches, or any desired depth in the boiler. And, by the way, it is much easier to push the evaporation when the sap is gauged to run shallow, say not over 1½ inches in the pans. Our little machine has four pans, and each pan has divisions, so the sap is always moving from the first apartment, where it goes in cold, to the last, where it may be drawn off a steady stream of finished syrup.

Now, these four pans can be disconnected in an instant (and that, too, without wasting a drop of sap or syrup), so that one person alone can easily handle any one of them. Every thing fits exactly anywhere. All joints are ground connections of solid brass. So far we have used nothing but dead and rotten wood picked up near the camp; but the furnace boils down so rapidly this small size will easily run 100 trees, although when I bought it I told the makers I expected to have only about 50 trees.

When we tapped our trees the neighbors all round here had closed up sugar-making, saying the unusually warm weather through the whole of March had started the buds, and that the sap had become "buddy." From what experience I have had, I have an impression that nice syrup can be made at any time when it freezes nights, and thaws days; but to do this, the pans must all be *clean*, and the sap gathered and boiled before any trace of fermentation has taken place. Our evaporators are all of heavy bright tin, and our syrup is as light in color, and as fine in flavor, as any I ever saw.

Some of the happiest hours of my boyhood were while I was running a little sugar-camp, and I confess that, during the past few days, when I passed from tree to tree, toward the close of a beautiful spring day, it made me feel as if I were a boy *again*.

After you have emptied the bright new tin pails, the ringing sound of the drops of sap as they strike the tin bottom, tinkling here and there off through the woods, has a fascination for *me* like few things else in the whole line of rural industries; and the sight of the leeks and adder-tongues springing up from their mossy banks, and peeping out from under their leafy blankets, makes me feel like swinging my cap and shouting my joy at the advent of springtime.[*]

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[*] At one time during our sugar-making a snowstorm came up. The carpenter had not quite got his roof over the boilers; but he hurried it up, and by night had it all secured from the wet. Meanwhile I had stirred around and collected some dry wood—enough to last me quite a spell, piling the dampest of it around the arch and all about the chimney; and as the sap kept running it was necessary to boil pretty well into the night. As I sat in a chair just before the furnace-door, listening to the rain outside, and reflecting that it could neither harm our apparatus nor could it get into the sap (because the pails were all *covered*), I stirred the fire again, and, making the sparks fly, and taking in the breath of the woods and the aroma of

What can be nicer for old people who enjoy these things than a pretty little camp, with all the things nicely cared for, to await sugar-making each spring? We are going to put away every thing, when the season closes, so it will be ready for use next time; and if *we* are not living when "springtime" comes again, it will be ready for some of the children or grandchildren who have inherited from us a love of the country and the woods.

In view of keeping every thing in apple-pie order, our sugar-house is made so it may be closed up tight during summer and winter. The sheet-iron smoke-stack slips off just below the roof (inside); and after it is stored in the dry in the loft, a door shuts down and closes the hole in the roof. The cupola, made to let out the steam from the steaming-pans, also has two horizontal doors to close up, so snow can not drift in, in the winter time. These doors are wide open when boiling, unless a severe storm makes it needful to close one or more of them.

In closing, I take pleasure in giving a letter from the Champion people that touches upon some important points.

Mr. A. I. Root: — We are much pleased with the report of your experience of manufacturing maple syrup. It seems you are getting on to the job all right; however, there are a few points, or, rather, a few questions, that I can answer that will no doubt be a benefit to you.

Our card of directions is all we have to send out to our patrons, but we are always ready to give explanations as far as we are able, where questions are asked.

In regard to bucket-covers, they might be a little handier in gathering if there were no bails, but the object of the bail is to keep them from blowing off the pail, as frequently you have a rainstorm with pretty strong wind

We will now explain to you how to operate the felt strainer: Of course, before using, it should be thoroughly wet in clear water. The syrup-maker should have a can for a settling-can, which is of pretty good height, and the strainer is hooked on to a little wooden frame which lies across the settling-can. After the syrup has been strained through the felt strainer until it becomes filled up, and the syrup does not run freely, it should be taken off and laid in the front pan in the evaporator. In large rigs, or where there are large bushes, there should be two felt strainers for use. While the sweet is boiling out of the one last used, place the other one in position for use When you wish to make the change, take the one out of the pan, turn it wrong side out, and rinse thoroughly in clear water and wring it out, and it is ready for use. Thus, you see, they are easily cleaned and you do not lose any of the sweet.

Your idea, we take it, is to can your syrup hot. We do not consider that necessary. We do that generally when the syrup is cool, and perhaps we can give you a pointer in canning syrup. The syrup-cans are generally made a trifle large, so that, when syrup is done to weigh 11 pounds to an even gallon measurement, it will not fill the can; but it is not necessary to fill the can entirely full. Put in one gallon of syrup; set the can a little on a tilt, with the corner where the screw top is the highest, then place the screw top over the nozzle and press in on the sides of the can until the syrup flows over the nozzle a trifle; hold it there until you screw down the top so that it is entirely tight. You will have, by running the syrup over the nozzle a trifle, a double seal. You will have your seal in the top of the screw top; you also screw the top down into the syrup, which makes it doubly sealed, and you will readily see, by pressing in the can until the syrup runs over the nozzle a trifle, that you have every particle of air out of the can. That is a very important point in canning syrup. Syrup canned in this way, and stored in a cool dark place, will hold its flavor for a long time.

The point of gathering your sap and boiling it in at once is correct.

Another important point, have your buckets securely covered, so that you will get no rain water mixed with the sap; and when the syrup is finished and strained through the felt strainer, although you may let your strained syrup settle in the settling-can, there will be but a trifle of sediment even in the bottom of the can, when the syrup is turned out. People having a quantity of syrup to can should have a little box made on purpose to set the can in, which will hold it in proper position, and work with a little lever and press the sides in.

We are glad to note that the syrup season has not ended, and that you still have prospects to experiment to some extent as yet. It seems singular that syrup-makers in that section have already gathered their buckets, as it would not seem to us that, in that northern climate, the buds had started so as to injure the syrup.

The syrup in our section this season has been merely nothing; but we have been informed, by parties in Wisconsin, that they are having an excellent sugar season in those northern climates.

We saw a statement in the papers a day or two ago, that estimated the loss of the sugar-makers in Northern Ohio at five hundred and fifty thousand dollars.

In regard to piping your sap down the hill, we would say we never had any personal experience; but we know of several parties that run their sap down hill through galvanized gaspipe.

Mr. A. A. Low, of New York, is operating some 50,000 trees in the Adirondacks, and he pipes pretty much all of his sap down the mountain, into the valleys.

If you should pipe this down and connect your piping with the regulator on the evaporator, we would suppose it would be nice to have your storage-tank at the top of the hill. We see no reason why you could not connect your piping with storage-tank at the top of the hill, and attach the same to the regulator on your evaporator.

You would have to keep a close watch on your tank, however, and not let the sap run low unexpectedly. If the sap all ran out you might burn your pan unless you were watching it.

In regard to storage-tanks, we do not agree with you that they should not be made of galvanized iron. It is no detriment to the sap, as it is never heated in the tank, but galvanized pans for boiling sap we most decidedly object to. CHAMPION EVAPORATOR Co.

Hudson, Ohio.

With the present good prices for maple syrup I think we can well afford to look after our groves of maple-trees Some time these beautiful trees may be planted for this purpose; but at present there are thousands of pieces of woodland where beautiful sugar-camps may be made in a comparatively short time by cutting out the other timber. Every sugar-maker has noticed the extra quantity as well as quality (sweetness) from trees in or on the edge of a clearing. Cutting out every thing else, or, if not quite that, cutting out all undergrowth of no value, will very soon make a wonderful difference in the thriftiness of the maples. If a tree dies now and then, it makes the best firewood in the world; and with prices from $2.00 to $2.50 for a cord of 18-inch wood (during the past winter it has sold for that

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the boiling sap. I said to myself, "Let millionaires have their luxurious dwellings and fine appointments; let the aristocracy have their gold and silver and diamonds, with their fine clothing, dining-rooms, etc. I would rather have my 'cabin in the woods,' with my little sugar camp out here in the darkness of the night, than any of these things that the great world craves and delights in — at least I *suppose* men delight in these things or else they would not sacrifice so much for them." It makes me think of the old poem:

Cleon dwelleth in a palace,
  In a cottage I;
Cleon hath a score of doctors,
  Not a one have I.

There is another verse that I can not recall; but the ending is—

"Happier man am I,"

and I think that fits my case exactly.

here in Northern Michigan), it may not be a bad investment to grow maple wood for fuel and for hard-wood flooring, etc. Aside from this, what is prettier on a well-kept farm than a neat and tidy maple grove? Start one going for your grandchildren, and you *may* live to see them enjoy it.

There is one unpleasant feature about maple-sugar making in localities where the soil is clayey. In the springtime it often gets to be very muddy around the camp in going to and from a sugar-bush. In our locality in the Traverse region of Northern Michigan, however, the soil has so large a percentage of sand that we never have any mud, even after the hardest rains. No standing water is ever seen anywhere. In choosing a locality for a sugar-bush I should greatly prefer a soil of this kind.

MAPLE SUGAR AND MAPLE SYRUP AS A FEATURE OF SOCIAL GATHERINGS.

I do not know that there is any other one thing, I might almost say in the whole round of "God's gifts" to his children, that is equal to nice maple syrup for furnishing a pleasant entertainment to visitors who may drop in, or for social gatherings of people, either young or old. Who is there that does not brighten up at the mere mention of a sugar-party? Many times when friends come in upon us unexpectedly, how easy it is, with a good store of maple syrup, to set a panful on the stove, so as to be able to bring in to the guests some "warm sugar" when they least expect it! and if it is at a season of the year when you can find a snowbank in some protected place in the woods, what a wonderful treat it is to give each guest a plateful of snow along with a saucerful of hot sugar! If there are any of our younger readers who have never enjoyed dipping the hot maple sugar in a pan of snow so as to make maple wax, let me tell you there is a treat in store for them. Then there is another thing yet. It is not everybody who has yet learned to make "maple cream;" in fact, Mrs. Root and I got on to it only this past season. This can be made of the last run of the sugar-bush, even of the syrup that is usually called buddy; or if the sap is soured a little in making it, and the sugar is a little backward about graining, that will not harm it. Boil it down very carefully until it gets hard when you throw it down on the snow, or dip it in cold water. Set it off the fire, put it in saucers, and let them cool, or get nearly cool, without any stirring. When nearly cold, commence stirring the syrup vigorously, and keep stirring it till it gets white like cream. If you manage it just right, it will be nearly as white as cream, and so soft that it can be dipped up with a spoon when perfectly cold—something of the consistency of ice cream, perhaps a little harder. But it is to me the most delicious sweet, and I do not know but I might say the *most* delicious dish of any kind that the world has yet furnished. I have never heard of maple-sugar *ice* cream; but let me suggest right here is an opening for somebody to make a small fortune. You want pure maple sugar or pure maple syrup, made with a Champion evaporator, such as I have described. This maple cream may be put away, say in jelly-tumblers, or something of the kind, and kept indefinitely. Have a lot of these in some convenient place; and when relatives or the neighbors' children come to make you a visit, and you want to give them something nice for a treat, just give each one a little sauce-dish of this maple cream. My impression is, there is more than one little chick around our "cabin in the woods" who will remember "Aunt Sue" for a long while; and I should not wonder if the juvenile mind would for long years associate her name with the dishes of maple cream she gave them.

ALFALFA—CAN IT BE GROWN ON MICHIGAN SANDY SOILS?

We take the following from the Michigan *Farmer*. It answers the question, at least partially, that has often come up, "Will alfalfa thrive as far north as Michigan, and especially in sandy soils?"

> Some people have been growing alfalfa for several years on the same ground, and speak very highly of it; in fact, all who have been able to get a good catch are pleased with the results.
>
> There are several reasons why alfalfa should have a place in Michigan among our forage-plants. First it thrives well on poor sandy soils where it seems impossible to get fair returns from the other clovers. Second, it thrives during periods of severe drouth when other crops are practically burned out. Third, it is relished by stock; and cows or young cattle after having eaten of it, either as a soiling crop or as cured hay, refuse other feeds like June clover or timothy. Fourth, it is nutritious fed alone, being equal to timothy and a moderate supply of bran. Fifth, as a coarse feed for hogs, either as pasture or to be fed dry in winter, I know of nothing that equals it. Sixth, it produces three crops per year; it should be cut when in bloom, which is generally from May 20 to June 1; again about August 1, and again about the last of September.
>
> The main difficulty seems to be in getting a good catch. At least 20 lbs. of seed should be sown on an acre, more would be better. In April, 1901, I sowed 20 lbs. per acre with beardless barley as a nurse crop; I went over the ground with a roller after sowing; got a fair catch I think harrowing in the seed would be still better, Don't pasture it with any thing any time if you wish to mow it. Don't try to raise seed, as it will not mature well in this climate. Put it on your highest, poorest ground; manure it after the first year, and work it in with a harrow. N. A. CLAPP.
>
> Oakland Co., Mich.

I may add that, in regard to the time of sowing, alfalfa can be put in at any time in May, and good results are obtained by sowing it in June. Right close to our cabin in the woods, in Leelanaw Co., there is a field that has been producing fair crops annually for a good many years.

HUMBUGS AND SWINDLES.

> MR. ROOT:—I inclose an advertisement and a letter for your consideration. I believe these fellows should be exposed. I did not expect to get the belt free, but wanted proof of their insincerity.
>
> Cedar Mills, O, April 16. STEEN FREEMAN.

The newspaper clipping that came with the above letter shows an electric belt flashing out lightning in every direction. Here is the way the advertisement starts out:

> ELECTRIC BELT FREE!
>
> Great electro-chemic belt! Why be a sorrowful, weak man, when this electro-chemic belt will restore you to health and happiness? This great free offer is made to you, and it holds good for a few days only; so, write to-day — it is yours for the asking, without one cent of cost to you. This is a real gift for advertising purposes. We are anxious to give it if it will be any help to you. You simply send us your name, and we send you the belt. It is yours to keep for ever, and we under no circumstances ask for or accept any money for it, either now or in the future.

I have often noticed this class of advertisements, and sometimes, I am sad to say, in the religious papers. I have thought several times I would write, just in order to find out what it was they give away free, or how they would get out of it. To tell the truth, I have several times been tempted to think they *really had* something that was such a boon to humanity they were sending it out free of charge in order to introduce it. It seemed as if the thing *must* have merit or they would not offer it in that way. But the letter that friend Freeman sends along explains the matter. It starts out in this way:

> MR. STEEN FREEMAN: — Your marked symptom-blank has received our careful and most thorough examination, and it will not be necessary for us to tell what your trouble is. You know it, and presume you know the cause of it. What you must consider now is its cure, for you probably know what it will lead to.

You see the above is so worded that it will fit any malady, and, furthermore, it is printed on a printing-press, and not on a typewriter. "You know it, and presume you know the cause of it." To make a long story short, they say his trouble is of such a serious nature it will require some powerful medicine to go along with the belt. The belt would not do him any good without the medicine; and it would not be any advantage to them to give it away under the circumstances, but quite the contrary. *With* the medicine, however, it will perform a great cure. The regular price for such treatment as he needs and must have (and that, too, at once) is $20 for a course of two months; but under the circumstances, on account of their sympathy (?) for him in his bad predicament, they will let him have the medicines at bare cost, $5.90. The belt *will* be sent absolutely free, according to contract.

Now, I am not prepared to say that *all* these things advertised absolutely free of charge are of this character. The great "Heidelberg Institute" is not quoted at all by Dun or Bradstreet, as you may suppose, although they profess to have a capital of $100,000. Of course, they make a wonderful parade of the great things that *electricity* does. They do not make mention, however, of the opportunity it gives people of this ilk to *rob sick people* by persuading them that electricity performs wonderful cures.

WAX PROFITS.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated herewith fills a long-felt want in rendering wax.

B. Walker, Clyde, Ill., says:

Was inclined to believe at first that the German wax-press was a failure; but after a thorough trial I was well pleased. I secured 30 lbs. more wax from one day's use of the machine than I would have secured by the ordinary method of rendering.

N. E. France, Platteville, Wis., State Inspector of Apiaries, and General Manager National Bee keepers' Association, says:

The German wax press is by far the best machine or process to save wax from old black brood-combs.

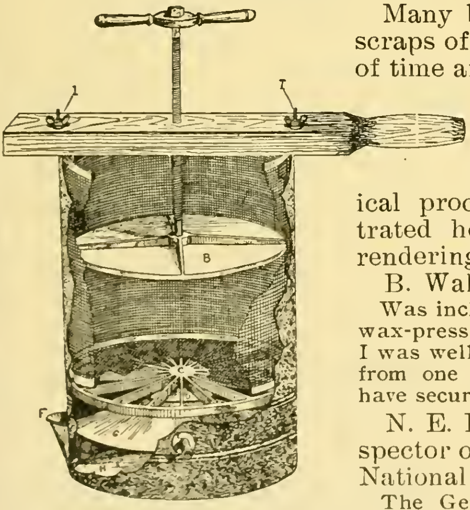


Fig 169.—The Root-German Steam Wax-press Price $14.00. Shipping weight, 70 lbs.

Manufactured by

The A. I. ROOT CO., Medina, Ohio, U. S. A.

We are now paying 30c cash, 32c trade, for average wax delivered at Medina.

L. Stachelhausen, whose picture appears alongside, has an article in the BEE KEEPERS' REVIEW for April, telling how to prevent both natural swarming and increase, yet get the best results in comb-honey production. It is a modification of, or addition to, slowly swarming, wherein the young bees, as they hatch in the old colony, are transferred to the shook swarm on the old stand, thus keeping that booming and piling up the comb honey.

Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the sender to the REVIEW one year for only 90 cents.

W. Z. Hutchinson, Flint, Michigan.

QUEENS Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin=the=Queen=Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long=tongued Red=clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa., writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr. ——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens Before July First.

	1	6	12
Selected Warranted	$1 00	$5 00	$9 50
Tested	1 50	8 00	15 00
Select Tested	2 00	10 50	
Extra Selected Tested—the best that money can buy	4 00		
Two-frame Nuclei, no Queen	2 50	14 00	25 00

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin=the=Queen=Breeder, Parkertown, OHIO.

For 1903 You Require Supply **PERFECT QUEENS**

Until further notice, to keep up with orders for Golden queens from old customers who find them to be splendid workers, I shall discontinue the other yards. I can send Holy Lands and Carniolans mated in this yard at the same prices These are good crosses. Untested queens, $1 00 each ; tested, $1.25. A few choice breeders, $2.50 each.

GEO. J. VANDE VORD, Daytona, Fla.

Golden or Leather-colored Honey Queens bred from the Laws strain. Untested, $1.00; tested, $1.25; selected tested, $1.50; extra selected, $2.00; breeders, $2.50 to $5 00. None better.

H. C. TRIESCH, JR., Dyer, Ark.

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence, ; Doniphan, Missouri.

Victor's = Superior = Italians

Go by Return Mail, and are Guaranteed to Give Satisfaction, or Money Returned.

I am ready with the same old true and tried stock of Italian queens and bees as of old. My queen-mothers in yards No. 1 and 2 are serving their fourth year in that capacity, 1900-1903. Their daughters have pleased The A. I. Root Co., W. Z Hutchinson, O. L. Hershiser, G. M. Doolittle, R. F. Holtermann, F. B. Simpson, and many others prominent in apiculture. In fact every customer has been pleased as far as I have heard. I COULD FURNISH HUNDREDS OF THE VERY STRONGEST TESTIMONIALS, but space forbids. Practically all the queens that I have sent from these yards were daughters and grand-daughters of the two "Oil Wells," as we often call them. Untested queens, $1.00 each; select untested, $1.25 each; tested, $2.00; breeders, $3.00 to $7.00. Send for illustrated price list.

W. O. VICTOR, Queen Specialist, WHARTON, TEX.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos. are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring —*E. A. Ribble, Roxton, Tex., Feb 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16. 1903.*

Prices of Queens: Each, $1.00; 12, $10.00 Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5 banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity, from 5 to 35 miles apart, February and March, $1.00 each, or $9.00 per dozen. All other months, 75c each, $4 25 for six, or $8 00 per dozen. Tested queens of either race, from $1.50 to $3 00 each. Breeders from $3 50 to $10.00 each 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**

P. O. Box 79, Beeville, Bee County, Texas.

Queens

My specialty is queen-rearing I rear two strains only—Long-tongue Red-clover Three-banded and the Golden Five-banders that work red clover as well as the three-banders. These two strains are the best bees in this country, all things considered. I furnish more dealers with queens than any other breeder in this country. Why? Because the queens give their customers the best satisfaction I insure all to be purely mated. Untested, 75c each; tested, in April, $1 25 after April, $1 00 each. My former address was Caryville, Tenn., but my queen trade has doubled for several years and I have moved to Texas. Remit by postal money order to **Daniel Wurth, Karnes City, Karnes Co., Texas.**

$QUEENS--$BEES--NOW.

A. L. Swinson, Queen-breeder, furnishes best to be had in U. S. **First-handed,** Warranted queens, $1.00. Tested, $1.50. Breeders, $5 to $10 **American Albino Italians,** and **Adels** mated to **Albinos.**

SWINSON & BOARDMAN,
Box 358, Macon, Ga.

Leather-colored Italians For Sale.

My bees were awarded 1st premium at the Minnesota State Fair in 1902 and 1901. Queens guaranteed in quality and transportation. In standard 8 or 9 frame hives, $5 00 each on car. A reduction on lots of 20 and over. Ready for shipment April 10.

W. R. ANSELL, Mille Lacs Apiaries,
Milaca, Minnesota.

Do You Buy Queens

If so, it will pay you to investigate my claims. I breed from best honey-gathering stock, and rear queens by best-known methods. I guarantee good queens, and beautiful, gentle bees. Some of my customers have bought 100 to 300 queens per year for *their own yards.* Write for circular and information. Untested queens, $1 00; $9 00 per dozen; tested, $1.25.

J. B. CASE, Port Orange, Fla.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

Teachers' Bible only 98c. Size 5½x7¾ in. Minion type. French seal, divinity circuit, red-under-gold edges. Nearly 400 pages of helps, including illustrations, concordance, maps. etc. Same with thumb index, $1.38. Postage 17c extra for either. **Sheet Music.** Catalog and special offer free on request Address

M. T. Wright, Medina, Ohio.

S. D. BUELL

Manufactures bee-hives, and is agent for The A. I. Root Co.'s goods, which are sold at factory prices. Catalog sent free. Bees for sale. Beeswax wanted.

Union City, Mich.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Do You Know that you could come nearer getting what you want, and when you want it, from the New Century Queen-Rearing Co. (John W Pharr & C. B. Bankston), than anywhere in the United States? Untested, 50c.; tested 3 and 5 band, 75c; all other races, $1.00. Send for circular. **Berclair, Goliad Co., Texas.**

POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.

Inland Poultry Journal, Indianapolis, Ind.

450,000 TREES

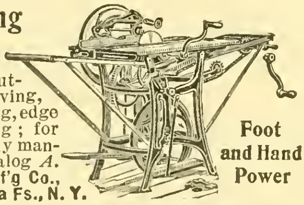
200 varieties. Also **Grapes, Small Fruits** etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **LEWIS ROESCH, Fredonia, N. Y.**

Ten Days Trial FREE

$26 Worth of Machinery for $6.50

HANDIEST THING ON THE FARM. 4 machines in one. Automatic sickle grinder. Tool grinder. Polisher for rusty tools and Saw gummer. **BI-PEDAL SICKLE & TOOL GRINDER** —high speed—4,000 revolutions a minute. **REMARKABLE OFFER TO FARMERS**—Grinder on 10 days free trial without deposit or advance payment. If it suits send us $6.50, if not, return it at our expense. **Write for it to-night. AGENTS WANTED.**

Ez **LUTHER BROS., NORTH MILWAUKEE. WIS.**



Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Root's Goods in Central Michigan!

Sold at their prices. Present given with each order amounting to $2 or over. List sent free.

W. D. Soper, Rural Route No. 3, Jackson Michigan.

Root's Improved Cowan
BALL-BEARING
Honey Extractor

They Wear the Blue Jackets.

Since the introduction of these extractors some 14 years ago to the bee-keeping world, we have been experimenting with a view to eliminating weak points, and perfecting the stronger ones.

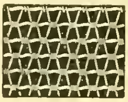
All Sizes. We manufacture all sizes of extractors from the small 2-frame to the 4 and 6 and 8-frame machine-power (power machines made to order only). The can part of these extractors is made of galvanized iron covered with blue japanning, and neatly lettered.

Galvanized. The comb-baskets are galvanized wire, well braced; the hinges, hoops, cross arms, and other metal parts, are galvanized after finishing, something you will get in no other on the market.

Band-brake. All four, six, and eight frame machines are provided with band-brake, which permits of the stopping of the machine instantly, without danger of breakage. These machines have large metal handles. Ball bearings are used which make them very light running. The honey-gates are large, which does not require the stopping of work to allow the honey to run out.

For sale by all large dealers in Bee Supplies.

MANUFACTURED BY
The A. I. Root Co., Medina, O.



FENCE! *STRONGEST MADE.* Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO.
Box 101, **Winchester, Indiana, U. S. A.**

If the Top Wire

in your 58-inch stock fence will not bear the weight of 20 men without breaking, give us a trial order.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

HIGH CARBON COILED SPRING STEEL WIRE **FENCE**
CATALOGUE FREE.
INDIANA STEEL & WIRE CO.
BOX 509 MUNCIE, INDIANA.

850,000 GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best Rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, Fredonia, N. Y.**

SLUG SHOT kills currant-worms, potato-bugs, cabbage-worms, and insects on flowers; used 22 years successfully. **Sold by the Seed-dealers.** For booklet on Bugs and Blight, address

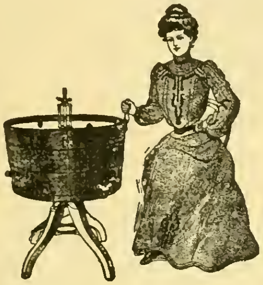
B. Hammond, - Fishkill-on-Hudson, - New York.

The "1900" Family Washer Free.

Greatest Invention of the Age; Labor and Expense of Washing Clothes Cut in Two.

No More Stooping, Rubbing, or Boiling of Clothes.

Every Household Needs One.



THE "1900" BALL-BEARING FAMILY WASHER SENT FREE

to any one answering this advertisement, without deposit or advance payment of any kind, freight paid, on 30 days' trial. The 1900 Ball-bearing Washer is unquestionably the greatest labor-saving machine ever invented for family use. **Entirely new principle.** It is simplicity itself. There are no wheels, paddles, rockers, cranks, or complicated machinery. It revolves on **bicycle ball bearings**, making it by far the easiest-running washer on the market. No strength required; a child can operate it.

No more stooping, rubbing, boiling of clothes. Hot water and soap all that is needed. It will wash **large quantities of clothes** (no matter how soiled) **perfectly clean in six minutes.** Impossible to injure the most delicate fabrics.

Would Not Take $50 for It.

Spring Hill, Texas, Nov. 3, 1899.

My wife would not take $50 for her 1900 Ball-bearing washer and do without one. The more she uses it the more she likes it. I think yours is the best machine in the world. J. C. MATTHEWS.

It is a Wonder.

Savannah Yacht Club,
Savannah, Ga., Jan. 21, 1901.

After a thorough trial of your 1900 washer on all kinds of washing, I think you have a "wonder." We have a very large washing, and have always had two women on Monday and one to finish on Tuesday. Our washing cost us $10 per month. With your washing-machine our cook and the yard-boy did the washing in four hours much better than it was done before. Your washer is all that you claim for it. W. M. KIDWELL, Supt.

No Boiling, No Rubbing.

Christianburg, Va., March 4, 1901.

I write to say that I have given the washer a thorough trial, and am delighted with it. I followed instructions carefully, and was so surprised to find that it did its work well. No boiling, no rubbing, and my clothes on the line as white and clean as I ever saw them, with half the work. N. B. WILSON.

Write at once for catalog and full particulars.

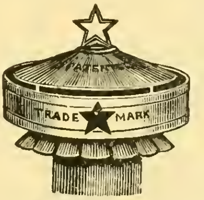
"1900" Washer Company,
295 L. State Street, Binghamton, N. Y.

Chicago to Colorado.

New overland service via Chicago, Milwauke & St. Paul and Union Pacific line. Thro' sleeper and free reclining-chair car to Denver from Chicago 10.25 p. m. daily. No changes nor delays.

Booklets and folder free.

F. A. MILLER, Gen. Passenger Agt., Chicago.
E. G. HAYDEN, Traveling Passenger Agent,
217 Williamson Bldg., Cleveland.



The "Star" Ventilator.

Storm proof, effective; for ventilating all kinds of buildings, barns, stables, and factories of all kinds. Send for illustrated booklet

Merchant & Co., Inc.,
Philadelphia, Brooklyn,
New York, and Chicago.
M'nf'rs High-grade Bright Tin

Cuba.

If you are interested in Cuba, and want the truth about it, subscribe for the

HAVANA POST,

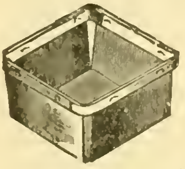
the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

Squab Book Free

Squabs are raised in 1 month, bring *big prices*. Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into*. Send for our **Free Book,** "How to Make Money With Squabs" and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
19 Friend St., Boston, Mass.

Fruit Packages of All Kinds.

—ALSO—



BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

THE NORTH-WESTERN LINE
C.&N.W.R'Y.

$33.00

California, Oregon, Washington

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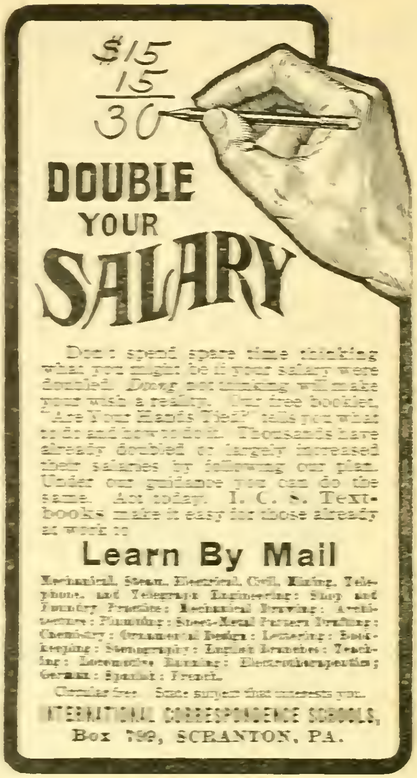

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Any one willing to work can make $15.00 per week selling our absolutely new Pocket Dictionary and Atlas of the World combined. 90 clear concise maps. 30,000 words defined; fits the pocket; worth a dollar to anybody. Send 25 cents for sample and terms.
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Heavy white, high-cut, size 6¼. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample address at once
Howard Co., 516 Masonic Temple, Chicago, Ills.

Only One Thousand Copies

of my new work, **Improved Queen-rearing**, printed book is selling like hot cakes. All new points in queen-rearing brought down to 1905. Lots of new points too. Order at once and get book and one of the **Finest Adel Breeding Queens** for $1.50. Catalog and prospectus ready.
Henry Alley, Wenham, Mass.

Mr. A. I. Root's Writings

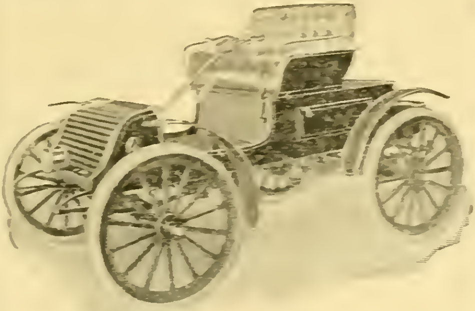
of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

$750 HYDRO CARBON

Capacity: 100-mile Gasoline-tank.



Capacity: 300-mile Water-tank.

Weight 940 lbs.; seven-horse power actual. Will run at any speed up to 25 miles per hour, and climb any grade up to twenty per cent. For catalog, address

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By Our Original Plan, whatever style of buggy you desire can be selected from our new **Buggy Book** and will be sent you to try 30 days. The Quality—

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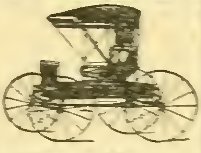
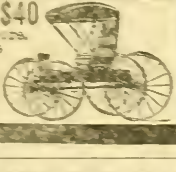
Finest finish and work obtainable. The price—a saving of dealers' and jobbers' profits. We manufacture our buggies in our own factory, know and guarantee their quality, and sell direct to you. Write for that new Buggy Book today.



KALAMAZOO CARRIAGE & HARNESS MFG. CO., 133 Ransom St., Kalamazoo, Mich.

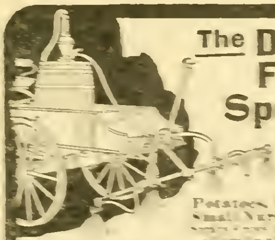
OUR FREE CATALOGUE

Send postal for it at once. It gives description and prices of our full line of celebrated Split Hickory Vehicles and harness which we sell direct from our factory to users at factory prices on 30 Days' Free Trial. It tells more about this SPLIT HICKORY WINNER $40 A job worth a half more. Write at once. Address



OHIO CARRIAGE MFG. CO.,
Station [illegible],
Cincinnati, - Ohio.

POULTRY PAPER. Illust'd, 30 pages, 25 cents per year. 4 months' trial 10 cents. Sample free. 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. **Catalogue** of poultry books free. Poultry Advocate, Syracuse, N. Y.



The Deming Field Sprayer

A model implement for spraying work in Potatoes, Strawberries, Small Nursery Stock, etc. [illegible]

One Man Can Operate.

Can be attached to any barrel sprayer and fitted to any wagon. Fitted with famous Bordeaux or Deming-Vermorel nozzles. We fit everybody's needs in bucket, barrel, knapsack and other sprayers. Write for free spraying catalogue.

THE DEMING CO., Salem, Ohio.
Henion & Hubbell, Western Agts., Chicago, Ill.

Special Notices by A. I. Root.

PREMIUM QUEENS.

Gleanings one year and untested Italian queens, (from our Southern breeders) only $1.00. Order early. Supply limited. We are mailing these queens within two or three days after receipt of order.

WANTED—SEED OF THE CHAPMAN HONEY-PLANT.

If anybody has any of the above seed even if only a little, I wish he would let us know. I am ashamed to say that we neglected sowing any seed before we were sold out.

WAX BEANS—ADVANCE IN PRICE.

The Davis wax bean is worth just double what we have been offering it for in our catalog. We have sold out all of our own growing, and have been obliged to purchase seed to fill orders; therefore future prices will be: Pint, 15 cts.; quart, 25 cts ; peck, $1.90; bushel, $7.50 To save ourselves from loss we shall be obliged to give customers their money's worth, instead of quantity mentioned in our catalog.

HIGH PRICES ON VARIOUS GARDEN SEEDS.

It is true, there are certain places where you can buy, for instance cucumbers, sweet corn, wax beans, etc , at less prices than we have quoted you. But when you get the lower prices you should bear in mind that you get *old* seeds. We have frequent offers of old seeds, with the statement that they will germinate 50, 60. or even 70 per cent. Now, the reliable *wholesale* dealers will tell this when they offer them for sale. The retail dealer who sells in small quantities is not so particular. Our cucumber seed was grown expressly for us, and we know it is fresh; the same way with our sweet corn what we have left If you buy cheap seeds, look out.

SHALLOTS, ONIONS, ONION-SETS, ETC.

Even though every thing in the onion line is cheaper now than it has been for years. I think it will be a mistake to let up on planting onions. Prices are likely to be away up a year from this time. The shallots mentioned in our last issue have not gone off very well; therefore we will reduce the price to 10 cents a quart, or 20 cents if sent by mail. Shallots furnish the first bunching onions, and perhaps the best; and it is the best-keeping onion of any thing in the onion line. The large ones will keep hard and firm in the spring when every thing else is gone; and the small ones always sell for about the price of onion-sets, and they are ever so much easier to raise. You can plant them any time in May Better try a quart, even if you are not acquainted with them.

COW PEAS—PRICES REDUCED.

We can furnish the Wonderful cow pea at 10 cts. per quart; same by mail, 25 cts ; peck, 60 cts.; ½ bushel, $1.10; bushel, $2.00. The Wonderful probably furnishes more feed than and other but in our locality, unless the season is very favorable it will not ripen many of the pods. We are obliged to send south for our seed. The extra-early Blackeye will be 15 cts per quart; by mail, 30 cts ; peck, $1 00; bushel, $3.50. This is, perhaps, as early as any variety of cow peas, and will ripen seed almost all through the North. Although it does not produce the amount of hay or feed, it is preferred by many, because they can raise their own seed. A leaflet telling about cow peas, how to sow them, and what they are good for, will be mailed on application. They can be planted at any time during May and June.

CRIMSON-CLOVER SEED LOWER.

The way clover seeds of all kinds have been marching up for the past year or two, it is a little refreshing to find one of them going down, and especially just a little before the time to sow it We can furnish crimson clover seed now at a dollar a bushel less than our last quotation: Bushel, $3 50; half-bushel, $1.90; peck, $1 00; 1 lb , 10 cts.; by mail, 20 cts.; 3 lbs. 50 cts. Probably the best time to sow crimson clover is in July, just about the time you sow buckwheat; and it does tiptop when put in *with* buckwheat; at least every experiment we have made of that kind is a success. If you can not get it sown in July, any time during August will do as well, or nearly so. With every thing favorable it may also stand the winter nicely on good rich ground if sown in September. I would not advise trying it as late as October. On our ground we have never failed in getting a good stand and have it winter nicely when put in as above.

SEED POTATOES FOR PLANTING; PRICES REDUCED.

In order to close out the remainder of our northern-grown seed-potatoes we make the following low prices:

Lee's Favorite,
Red Bliss Triumph,
Maule's Commercial,
State of Maine,
Whitton's White Mammoth.

All the above will be 65 cts. per bushel; seconds, 40 cts. per bushel. The above are all late potatoes except the Bliss Triumph; this is the earliest potato known.

Russet,
New Queen,
King of Michigan.
Early Michigan,
Early Trumbull,
Twentieth Century,
Early Ohio,
Freeman,
Craig.

All of the above will be 75 cts. per bushel for firsts, 50 cts per bushel for seconds.

A full description of all these new and valuable varieties will be found on page 265, March 15. If you want them better order quickly or the kind you want may be gone.

WHITTON'S WHITE MAMMOTH POTATO AT $6.50 A BUSHEL.

We clip the following from John Lewis Childs' catalog for 1903:

> WHITE MAMMOTH POTATO
>
> A mammoth seedling of great promise. It is an unusually strong grower, great drouth and bug resister, and sure cropper; tubers extra large, white, oblong, flattened; few eyes, and those on the surface, and a beautiful skin. In quality it is one of the best, and an enormous cropper. In keeping qualities it is par excellence, remaining hard and brittle until very late spring. Season, medium late—a variety which is sure to be a money-maker; and for a general-crop variety we think it will prove to be the best yet introduced. Fine tubers, 15 cts. each ; 3 for 30 cts ; 12 for $1.00, postpaid. Peck, by express, $2.00 ; bushel, $6.50.

I may add just here that this potato was originated right near Medina, and is probably all or nearly all that is claimed for it. Please notice his price is $6.50 a bushel; ours is 65 cents

ALFALFA—ITS ADAPTABILITY TO DIFFERENT LOCATIONS.

Dear Mr. Root:—Through your kindness last season I sent out among readers of Gleanings a quantity of very choice alfalfa seed for trial. It was grown in the high altitudes of Nevada and supposed to be much better acclimated for trial in the colder sections of the Northwest. I sent with each lot directions for sowing and how to manage it, requesting that reports be sent me, but at the present time few have replied. I am very anxious to have these reports, and am able to reach these people only through Gleanings, as in some way the names have been destroyed. You would, therefore, greatly oblige an old subscriber if you would kindly make some mention of this in the proper department.

Again, this season I have a small lot of very choice seed that can be shared among those wishing to give alfalfa a fair trial, if they will share the cost of seed and postage, say 25 cts. silver (no stamps), and I will venture to promise each one enough to plant a plot 50 to 100 feet square, if handled according to the directions I shall send.

There is nothing in this for me except my trouble, but I am willing to help our brother bee-keepers to know some of the wonders of alfalfa, and you will likely help some one in making mention of my offers. Alfalfa can be successfully sown up to June 15th in almost every section. William C. Aiken.

Angwin, Napa Co., Cal.

[We give place to the above, even though it comes a little in the line of free advertising. From reading the different agricultural papers I am satisfied that alfalfa can be made a great boon to farmers throughout almost all the Northern States. It is succeeding here in Ohio; and as an adjunct to the grains for feeding all domestic animals it takes a place that nothing else can fill. There is an especially great need of seed that has been grown in colder regions. Will those who tested friend Aikin's samples last season send a brief report to us that we may give it in Gleanings?]

Convention Notices.

The spring meeting of the eastern part of the Northern Illinois Bee-keepers' Association will be held at the residence of James Taylor, in Harlem, Winnebago Co., Ill., May 19 1903 All interested in bees are cordially invited to attend. B. Kennedy, Sec.

Cherry Valley, Ill.

Carniolans and Italians. **Choice Queens a Specialty**

Having added extensively to our queen-rearing plants in the North and the South we can furnish any number of queens on short notice.

Carniolans. Very prolific, hardy, gentlest bees known. Great comb builders. Sealed combs of a snowy whiteness. A worker on red clover.

Italians. Gentle, prolific, swarm very little, fine workers, and a red-clover strain.

The Carniolan-Italian Cross. A cross giving the combined qualities of each race, are hustling workers, the coming bee for comb honey.

One untested queen, $1; 6 for $5; 12 for $9. Tested, $1.50. Best breeder, $3 Best imported breeder, $5. For full colonies, one or two frame nuclei, large orders for queens, send for descriptive price list. Orders booked now will be filled when desired.

F. A. Lockhart & Co., Caldwell, N. Y.

The A. I. Root's Co's Goods in Oklahoma.

Save freight by buying of F. W.
VAN DE MARK, RIPLEY, O. T.
Catalog free for postal.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell 24 swarms of bees in chaff hives.
O. S THOMPSON, Allen, Mich.

WANTED.—To buy bees or four-frame nucleus.
B. F. HOWARD, Hoyt's Corners, N. Y.

WANTED.—Man to raise queens, and take care of bees.
F. H. FARMER, 182 Friend St., Boston, Mass.

WANTED.—Apiarists for the West Indies. Several of our correspondents want help. Write at once for particulars. THE A. I. ROOT CO., Medina, O.

WANTED.—Having facilities for rendering wax by steam, I will pay cash for old comb
N. L. STEVENS, R D. 6, Moravia, N. Y.

WANTED.—To sell 40 colonies, crated, $2.50 each; 25 colonies in Jumbo hives, $3.00.
GARDINER L. ELLIS, Millsboro, Del.

WANTED.—To sell select eggs from pure B. P. Rocks, at 30 for $1.00 Good stock.
DAFFODIL FARM, Mt. Horeb, Wis.

WANTED.—To buy bees in Illinois, Indiana, Michigan or Wisconsin.
WM. C. DAVENPORT, Lock Box 80, Wilmette, Ill.

WANTED—To sell 18 strong colonies of bees, $5.00 each. In 10-frame L. P. hive with honey f. o. b.
T. N BRIGGS, Marion, Mass.

WANTED—To sell 200 5-gal honey-cans, all in A No. 1 shape, at 10c per can, f. o. b. at Detroit.
CHAS. C. CHAMBERLIN, Romeo, Mich.

WANTED.—To exchange for honey, or cash, 60-lb. cans, good as new, per case of two cans, f. o. b. here, 40 cents.
G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—To exchange 100 egg-size incubator and brooder; never used; Stahl make, for honey-extractor, baby-carriage, Jersey harness, or offers.
C. H. MAY, Grove Hill, Va.

WANTED.—To sell Sir Walter Raleigh seed potatoes, 60c bu. A. P. Lawrence, Hickory Corners, Mich.

WANTED—To exchange or sell 50 colonies of Italian bees, for honey or cash.
DAVID DANIEL, Hawthorn, Pa.

WANTED.—To sell single-comb White Leghorn eggs for hatching at $1.00 for 26; $3.00 per 100
J. P. WATTS, Kerrmoor, Pa.

WANTED.—To exchange 25 volumes of farm, bee, and fruit papers, for Barred P Rock eggs.
JAS A. GILLETTE Burchinal, Iowa.

WANTED.—To exchange pure Barred Rock eggs, 15 for 1 tested queen or 2 untested; $1.50 value. Russel male. JOHN C. STEWART, Hopkins, Mo.

WANTED.—At once, 200 swarms bees. Will pay cash. QUIRIN, THE QUEEN-BREEDER,
Parkertown, Ohio.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED—To sell or exchange Winchester sporting rifle, 32-40 cal., rim shot; also guitar, both nearly new, for any thing useful in apiary, or ladies' wheel. ELTON LANE, Groton, N. Y.

WANTED.—To exchange bees for foot-power saw. Sixty colonies of bees in fine condition for sale; also two fine improved farms for sale.
F L. WRIGHT, Webberville, R. F. D. 2, Mich.

WANTED.—To exchange Encyclopædia Britannica, for any thing that I can use in bee supplies; 26 volumes, index, and guide; good condition, 1896.
RUFUS CHRISTIAN, Meldrim, Ga.

WANTED—To exchange or sell for cash, selected, second-hand 60-lb. cans, practically as good as new, for 35 cts. per case f. o. b. Chicago
B WALKER, Clyde, Illinois.

WANTED—To sell or exchange 25 Simplicity hives, new and complete, and 100 Simplicity bodies, practically new. Write for prices
A Y. BALDWIN, De Kalb, Ill.

WANTED.—To sell 12 Ideal supers, 8 frame, for 3⅝ x5 sections, nailed and painted, nearly new, with slats, fences, etc., complete, with 425 new sections, for $4.50. A. P. WILKEY, Calvert City, Ky.

WANTED.—Man, either married or single, to work on farm by month or year. Must not use tobacco, nor drink or swear. Give references, state age and experience.
C. J. BALDRIDGE, Kendaia, Seneca Co, N. Y.

WANTED. To exchange a genuine Stradivarius violin 150 years old, foundation-mill, bone-mill, shotgun, revolver, clothes-wringer, game roosters, and fox-hound pups ELIAS FOX, Hillsboro, Wis.

WANTED.—Agents to sell and attach automatic cut-off to grinding-mills especially adapted for stopping aermotor windmills. For further information address BONIFACE STRITTMATTER,
Bradley Junction, Pa.

WANTED.—Customers to send for my booklet describing my Rhode Island Reds, Light Brahmas, and Barred Rocks; hardy, prolific, farm bred, pure stock from which I sell the eggs to hatch at 6 cts. each.
WALTER SHERMAN, 100 Boulevard, Newport, R. I.

WANTED.—A bee-keeper to run a large apiary for comb honey, in New York State Must understand the business thoroughly. One who can produce a nice article. Also a young man with limited experience, who wishes to learn.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—If you desire the benefit of my thirty years' experience with bees, and desire to work in my bee-yards, and work on the farm when there is no work to do with the bees, send me your address. Or I could use an experienced man. Bees and empty hives bought. State experience, and wages expected.
W. L. COGGSHALL, Groton, N. Y.

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.

PAGE & LYON,
New London, Wisconsin.

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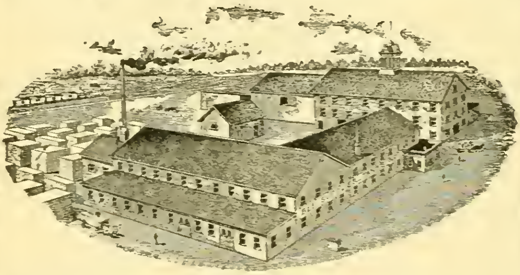
AND DEALERS IN . . .
BEE-KEEPERS' SUPPLIES. . . .

Send for Our Free New Illustrated
Catalog and Price List. . . . .



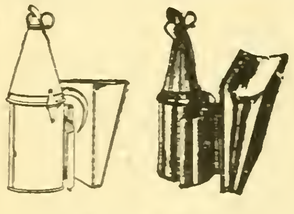
Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE-SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

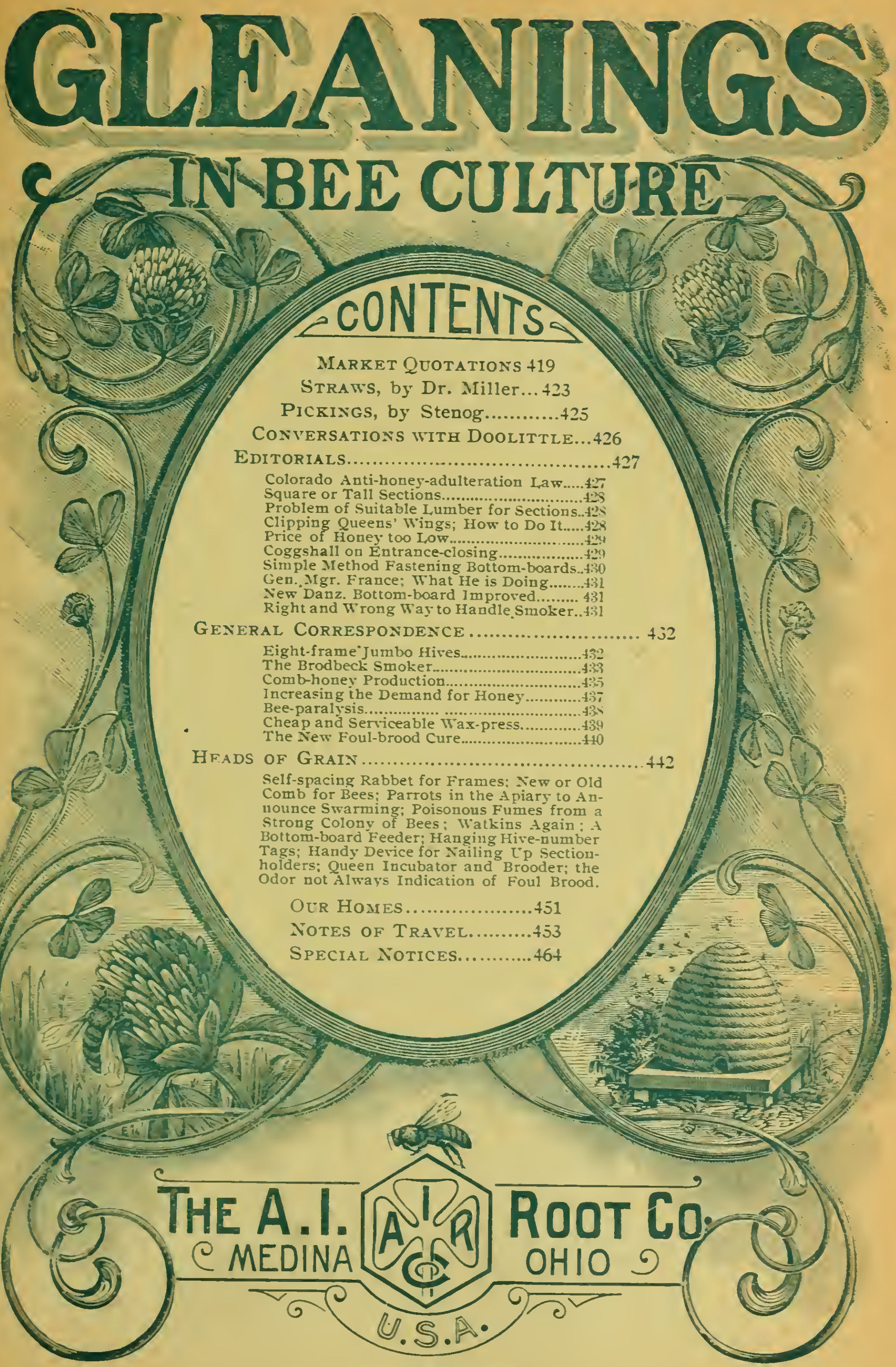
Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI MAY 15 1903 Number 10

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

Entered at the Postoffice at Medina, Ohio, as Second-class Matter.

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SUPPLIES

Until you see our 43d annual catalog. We've a carload of Root's Goods, and supply many goods not advertised in our catalog.

Root's Sections, Weed's New Process Foundation a Specialty.

We can supply these goods at their prices, and thereby save you valuable time and heavy freight charges. Bees, queens, and nucleus colonies from the very best strains in America. A 32-page illustrated catalog free.

W. W. CARY & SON,
Lyonsville, Massachusetts.

Root's Bee-Supplies

for the South Atlantic States at Root's Prices.

* * *

Quick Shipments and Low Freight Rates.

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One-horse wagons,
Corn-shellers for Poultry,
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Feed-cutters,
Tilting and Sliding Table Saws,
Steel-runner Attachments for Vehicles.
Send for Catalog H.

* * *

Rawlings Implement Company,
Baltimore, Md.

Ontario Bee-Keepers

will be pleased to learn of the establishing of a depot for the distribution of the celebrated line of ROOT'S BEE-SUPPLIES from the Capitol City. By placing your order with us you will save the delay and inattention which is not uncommon with the importation of small shipments from the States.

We shall keep on hand a large stock. Give us a list of your requirements, ask also for our bee-catalog.

E. Grainger & Co.,

12 Yonge St. Arcade. **Toronto.**

Northeastern and New England

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Me.
Mgr. The A. I. Root Co's. N. E. Agency.

—THE—

DANZ. HIVE

The comb-honey hive is one of our specialties. Send for booklet telling about it.

We are the jobbing agents for The A. I. Root Company in Michigan, and want the name and address of every bee-keeper in the State, whether you have one swarm or 500.

M. H. Hunt & Son
Bell Branch, Mich.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—The honey market is quiet, with plenty of stock on hand. We quote fancy, 14@15; No. 1, white, 10@13; buckwheat, 10@12. Extracted, California, 6½@8. Beeswax, 30@31, and wanted.

FRANCIS H. LEGGETT & CO.,
May 8. Franklin and Varick Sts., New York.

CINCINNATI.—The demand for comb honey is nearly over; but, as the stock is almost exhausted, prices keep up. Fancy water white brings 15@16. The demand for extracted has not changed whatever, and prices are as follows: Amber, in barrels, 5¼@5½; in cans, 6@6½; white clover, 8@8½. Beeswax, 28@30.

C. H. W. WEBER,
May 8. 2146-8 Central Ave., Cincinnati, Ohio.

CHICAGO.—The past winter and present spring have been a disappointment to producers and dealers in honey, in that the consumption has been away below the average of the last decade. Choice to fancy comb is held at 15@16 per lb., with off grades 2 to 5 cts. per lb less. Extracted white, 6@7; ambers, 6@6½; dark, 5½@6. Beeswax in good demand at 32.

R. A. BURNETT & CO.,
May 7. 199 South Water St., Chicago, Ill.

PHILADELPHIA.—The reports that are coming in show a large honey yield all over the country, and buyers are slow to make any bids for the coming season. Very little doing in immediate sales, as the season is about over for the sale of comb honey, and therefore have no quotations to make. Extracted fancy white is selling at 7@8; amber, 6@7, according to quality. Beeswax is in good demand at 30. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
May 8. 10 Vine St., Philadelphia, Pa.

DETROIT.—Not much honey in the market, and no great demand Prices rule about the same; possibly a little less. Prices are as follows: A No. 1, 15@15½; No. 1 dark, 11½@12. Beeswax, 30@32.

May 8. M. H. HUNT & SON, Bell Branch, Mich.

TOLEDO.—The supply of comb honey is nearly exhausted, but the demand fair at the following prices: fancy white comb honey, 17; A No. 1, 16; no demand for dark. Extracted white clover, 8; light amber, 7; dark amber, 6½. Beeswax, 28@30.

GRIGGS BROTHERS,
May 9. 214 Jackson Ave., Toledo, Ohio.

KANSAS CITY.—The supply of comb honey is about exhausted. The demand good. We quote as follows: fancy white comb, 24 sections, $3.50; No. 1 white comb, 24 sections, $3.40; No. 2 white and amber, $3 00@$3.25; extracted, white, per lb., 6@6½; amber, 5½. Beeswax, 25@30.

C. C. CLEMONS & CO.,
May 11. 306 Grand Ave., Kansas City, Mo.

BUFFALO.—Demand for nice white comb honey is very good for this season of the year. Prices are lower now than they were, for if prices were as high as they were a couple of months ago we would not be able to sell much. Fancy white comb, 14@14½; A No. 1, 13@14; No. 1, 12@13; No. 2, 11@12; No. 3, 10½@11 (makes a difference of about one cent if travel-stained); dark comb honey, 10@12. Extracted white, 6@7; dark, 5@5½. Beeswax, 31@32.

W C. TOWNSEND,
May 11. 178, 180 Perry St., Buffalo, N. Y.

NEW YORK.—The market on honey is very quiet and very little doing, with more than sufficient supply on hand to meet the demand. Fancy stock of comb honey is well exhausted, while other grades are still plentiful, and selling at 13c for No 1; No. 2, 12; amber, 11; buckwheat, no demand. Extracted remains quiet at unchanged prices. Beeswax firm at 31.

HILDRETH & SEGELKEN,
May 8. 265-7 Greenwich St., New York City.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

FOR SALE.—We are sold out on alfalfa honey, but have ten 350-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls. fancy basswood at 8c; 60-lb. new cans, two in a case, 9c. E. R. PAHL & CO.,
294, 296 Broadway, Milwaukee, Wis.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM,
1318-1324 Union Avenue, Kansas City, Mo.

Kind Words from our Customers.

Inclosed find $4.40 for potatoes. Your seconds are so good I am sorry I did not order two barrels of that kind. M. L. DAVIS.
Smith, Mich., April 29.

GLEANINGS AS AN ADVERTISING MEDIUM.

I have sold my bees and supplies at Delhi, Ill., that I advertised in GLEANINGS for April 1. I have received almost 100 letters in regard to them, and sold the outfit before I had an opportunity of answering half the letters, and I wish to take this opportunity to let them know why I did not answer their letters.
Sapulpa, Ind. Ter., April 23. H. D. EDWARDS.

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Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

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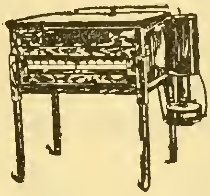

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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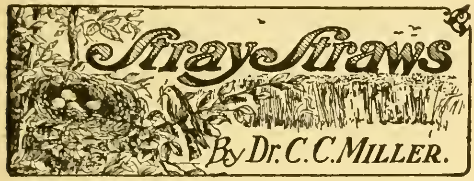


Stray Straws

By Dr. C. C. Miller.

IN DISCUSSING the causes of brace-combs in section-supers, it should not be forgotten that too little room may be a cause. Probably any colony may be forced to build burr and brace combs by sufficient crowding, in time of heavy flow. [You are right.—ED.]

PAPER tied around a hive, and then a close-fitting winter-case over the whole, proved a failure at Medina in wintering bees, while chaff-packed colonies beside them wintered well (p. 371). But, Mr. Editor. if I understand correctly Arthur C. Miller, his plan was not the same as yours, for he had no case outside the paper. [That is true; but the conditions were more nearly alike than perhaps appears from my footnote. This matter will be referred to in our next issue by Mr. A. C. Miller.—ED.]

GO SLOW about that raw-honey business, p. 380. So much mischief has been done by putting raw honey on the market that it is dangerous to give any encouragement for experiments in that direction. Besides, would it be feasible for the baker to use up all the honey so nearly at one time? Don't bakers use honey throughout the year? And would there be such a great gain after all over the plan of having the honey ripened in the hive? If the baker is sharp, he'll hardly want to pay full price for the water in the raw honey, to say nothing about the flavor.

THAT PLAN of melting cappings in the oven to get out the honey, p. 381, suggests a plan that I have used with satisfaction. Simply put the cappings in something to let the honey slowly *drain* out. "Knew that before?" Of course, you did. But you remember that, after draining a while, the honey dried on the cappings so it wouldn't drain any more. Well, my trick was to set the cappings down cellar before beginning to drain. In fact, the extracting was done down cellar, and it makes a nice cool place for the work. Most of the honey would drain out of the cappings before it was injured by thinning, and the last of it would become very thin with the moisture of the cellar, allowing the cappings to be washed clean without diluting the honey more than was absolutely necessary. But it wouldn't work in places like Colorado, where they keep bread in the cellar.

YOU HESITATE, Mr. Editor, p. 379, as to what you're going to use to paint the insides of your bees green. You say bluing for blue; now, use bluing sparingly, so as to make light blue, and feed to yellow bees, and the combination of blue and yellow ought to make green. Indeed, unless a very dark blue be used to make them blue, I should expect a tint of green in it. [It is true, that a combination of blue and yellow makes green. If a bee is filled with yellow nectar (and nearly all nectar is on the yellow order), the transparent bands will show yellow. If it is filled with a blue nectar it will show a blue, because those bands are white—not yellow, as you suppose. The yellow bands we so much admire are yellow because of the color of the fluid back of them. I will try your experiment, however, to see whether the blue will turn green in the bees. But I should not expect it.—ED.]

MR. ALBERT GALE is a man for whom I have respect, but I wish he wouldn't use his influence in the direction of confusion of language by using such expressions as one quoted from him on p. 373, "six hives threw off thirteen colonies." Wicked as a certain Ohio editor is "along that line," I think he must gag at least a little at a *hive throwing off a colony*. [The quotation from Mr. Albert Gale was an extract from a foreign publication. We do not feel the same liberty about revising or editing *extracts* that we do in the case of *manuscripts*. Why, doctor, I had to revise *your* manuscript this very day. Indeed, you "gagged" me very much by telling about using "starters in place of full sheets in brood-*comb*" (italics mine). Of course, I changed it to "frames," as you will see in the Straw. Say, doctor, I wish you could be an editor just long enough so I could "get it back" at you. I promise you I would make your life miserable after the two first issues of your paper had appeared.—ED.]

I'M AFRAID some beginner may be advised in the wrong direction by what Geo. W. Strangways says, p. 387. He made *a few* trials with full sheets of foundation, and the combs warped, and some of it was converted into drone comb. But hundreds of us have made many trials on a large scale without any failure, which rather goes to show that Mr. Strangways failed to fasten his wires into the foundation, or made some other mistake not usually made. I have more than 2000 combs built upon full sheets of foundation, and I don't think you can find a warped one in the lot. Neither will you find a square inch of drone comb in the whole lot which the bees have built upon worker foundation, although you'll find a good bit of drone comb where by some means a hole has been made in a comb, to be filled in at the will of the bees. It would be a very unusual thing to see the drone-cells built upon worker foundation that was straight. If it should be warped or curved, I should expect drone-cells on the convex side. But there's no need to have it warped or curved. [We have thousands of beautiful combs built off from full sheets of foundation, and it would be hard to find a single cell of drone comb except near the top-bar. Carelessness in putting in the wires, or attaching foundation to the wires, may result in the stretching of the foundation, making the cells large enough to rear drones. Yes, perhaps the beginner should go slow.—ED.]

IN A STRAW, p. 372, I said there must be a mistake about formaldehyde curing foul brood without destroying healthy brood, and in a footnote you say, "No mistake," Mr. Editor, and then later on you say, "But it may be that I am wrong in assuming that healthy sealed brood will not be killed." This leaves it a little uncertain just where you do stand. Whether the healthy brood be killed or not is a matter of thousands of dollars' difference, and it would be foolish to raise false hopes. I can not conceive the possibility of any drug sufficiently energetic to go to the bottom of a cell of sealed honey and kill a foul-brood spore there, and yet leave uninjured a cell of brood in any stage. [I was first under the impression that only a spray and not a gas was used to disinfect the combs. With that impression I reasoned that the drug could thus be injected into the perforated cappings of foul brood, while the healthy brood with cappings intact would not be molested. But now that we know positively that a gas of a decidedly penetrating character is used, there can be no question that healthy as well as diseased brood will be killed. But, see here, doctor; we can save even the brood by letting it all hatch out that is healthy, then subsequently disinfect the combs with gas. Of course, we could do that with the McEvoy treatment; but the McEvoy method involves the destruction of the combs, either by melting or burning up — can't get around it. *If* the formaldehyde-gas treatment can be made effective, we really do not need to destroy *any* thing. The same combs and same hives can be used over and over again. I do not feel as sanguine as some do, that formaldehyde is going to do all that is claimed for it; but so much has been said in its favor that it deserves careful consideration on the part of practical bee-keepers and all the bee-papers.—ED.]

YOU SAY you're going to take A. I. R. on your first auto trip. Don't you do it unless he consents to have his hands tied; for just as sure as you get up a good speed he'll want to go three times as fast, and then he'll grab the thing out of your hands and get to going at such a rate that he'll run you into the Atlantic Ocean. [At first A. I. R. was skeptical. He thought the automobile was a "naughty mobile;" that it would break down; would stop, and would not run. Well, that is the way my machine did until I learned more about handling it; and now that I am able to make it go when I want it to go, father is pleased — very much so — over it. He asks questions, and actually gets down on his hands and knees, and squints under the machine. He now begins to wonder if *he* could not run it. Well, I am going to give him a chance. We are at present visiting our out-yards with the auto. After my experience with horses stung and killed around the bees it is a real comfort to run my iron horse clear up among the bees without the least fear of the bees stinging it. Sometimes even now when I run up close to a trolley-car or a common steam-car I forget myself and wonder if something will not happen—not that I shall get run into, but that my horse may get scared. Then the feeling (a very comfortable one I can tell you) comes to me that my steed will not scare. I tell you, the coming way of handling out-apiaries will be with the automobile; and I most firmly believe that Rambler's joke of two years ago, of doing our extracting with the same engine that runs the auto to the out-yard will be realized before we know it; and I should not be surprised if some enterprising chap would use his machine for making bee-hives, brood-frames, etc. Yes, I hope to see the day myself when a self-propelled road-scraper will level off our horrible clay roads at a third of the cost the work is now performed for with horses. —ED.]

GO SLOW about advocating setting hives on stakes, p. 392, on the ground that one "can shove his toes under, permitting him to get closer to the hive," until you've given it a thorough practical trial. I've just been out to try it, and I think you can not sit and work comfortably with your toes further out than your knees. For standing work it would be all right; but it would be bad for clipped queens trying to make their way back to the hive; also for workers falling down with heavy loads. [The illustration on page 392 should have been modified, perhaps, just enough to obviate the objections you point out. In the first place, I would have the four stakes driven down into the ground a little further, so that the hive would not stand more than four inches above the general level. Then I would have a rough board of inch lumber, perhaps 10 inches wide, run up against the end of the bottom-board so as to give the bees an inclined runway clear up to the entrance. When bees come in heavily laden from the field, many of them are so exhausted that they drop on the ground. After rising they will take wing if they can not crawl up into the hive. Some of them may never take wing, but crawl, vainly trying to get into the hive. But it is in early spring that bees are lost unless there is an inclined runway from the ground up to the entrance. Hives with easy ingress will be much less subject to spring dwindling; and I do not know of any thing that means more money to the bee-keeper than good runways from the ground to the bottom-board in early spring. If we modify the principles of the stake slightly we still secure the advantages of cheapness as well as close proximity of working distance, and yet eliminate the objections you have mentioned. If a young queen is crawling around on the ground I would much rather have her crawl under a hive supported by stakes than to have her run under a hive supported by a rim that fits close to the ground, making it necessary to lift the whole hive off the stand to find her.—Ed.]

I COMMEND your desire, Mr. Editor, not to be biased in your judgment by self-interest; but your views on p. 388 remind me of the reply of the carpenter's apprentice. He was using a plumb-line up on a building, and the boss called up to him, "Is it plumb?" Promptly came back the reply, "Yes, it's plumb, *and a leetle more.*" I think you're a leetle more than plumb in your views when you say, "One can manage to have all worker-combs built from starters, and thus save considerable expense in the way of foundation." It is possible some may make money by using starters in place of full sheets in brood-frames, but I believe the average bee-keeper will lose by it. I am sure I "can manage" to have all-worker combs built upon starters; but the *managing* will cost more in time and trouble than the full sheets of foundation would cost. Let the beginner use full sheets until he has found out by experimenting on a small scale that he is one of the few who can afford to use starters only. [The members of our company have before now complained that I was a little "too plumb." It would be a natural thing for the publisher of a bee-journal to allow a certain amount of bias in the interest of his business to creep into his columns. Realizing that nothing would so weaken a journal as a policy of this kind, I have perhaps erred in going to the other extreme—that of accepting and indorsing matter which in its ultimate tendency is against the interest of the manufacturer, and that means myself with the other members of our company. This question of starters versus full sheets in the brood-nest is a very important one. I suspect it is true that the average beginner would make more money, perhaps, with full sheets than starters; but we were talking about some veterans, who make four ounces of foundation answer the purpose of a full pound. If there are some men who can do it profitably, I am perfectly willing that the method for accomplishing the feat shall be fairly exploited in these columns. —Ed.]

Pickings from Our Neighbors' Fields
By "Stenog."

Reports, foreign as well as domestic, indicate that formaldehyde is the coming (if not arrived) specific for foul brood. It is well worthy of a very fair and thorough trial.

* * *

Vague rumors of the production of beeswax directly from honey are reaching us from foreign shores. Probably it will be best to depend on the bees for some time yet. Isn't there some way by which bees can be managed to work for wax in quantities more than they need, just as they do for honey?

AMERICAN BEE JOURNAL.

The many friends of Thomas W. Cowan will be glad to read the following:

> Mr. Thomas W. Cowan made us a very pleasant call on April 29 when on his way through Chicago to England from his home in California. He seemed to be in splendid health, and looked forward with pleasure to a year and a half of travel. He has a very pleasant home at Pacific Grove, Cal., and when leaving recently the people of the town gave himself and Mrs. Cowan a farewell reception which included practically everybody that could go there. They evidently have endeared themselves to the people of that locality by their many deeds of kindness and genuine worth.
>
> Mr. Cowan has practically retired from active work and business, and is able to devote himself to pursuits which yield no financial returns. We trust that Mr. and Mrs. Cowan will have a pleasant and safe journey, and return to their California home much benefited by their trip.

* * *

While we know a good deal about Dr. Miller the bee-keeper, the following of a personal character will be read with interest by his many friends:

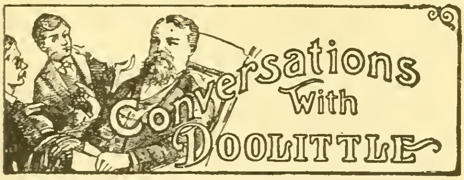
Dr. C. C. Miller, whom all bee-keepers respect so highly, and many of whom know so well, called on us when in Chicago last week. With the exception of a cough which has bothered him for a few weeks, he is in excellent health, and is able to do considerable work among the bees as well as much writing. He is one of the few old-line bee-keepers, and rightly merits the title of "Father Miller." While there may be many Dr. Millers in the world, there is but one Dr. Miller known well to bee-keepers. Not only those who have a personal acquaintance with him, but all who have read his helpful writings on the subject of bees, hope that he may live yet many years to bless the world with his cheerful presence and excellent apiarian advice.

While visiting at a friend's lately I was playing at random a fine passage from an organ-book. At the close I was pleased to notice that it was written by our old friend Dr. Miller, whose name as a music-writer was familiar to me before I ever heard of him as a bee-keeper.

MODERN FARMER.

Mr. Abbott uses no gloves when handling sharpers; and in speaking of things that are doubtful his advice is good. The following sounds like excellent counsel:

> Do not get the ginseng fever. If all reports are true, there has been more money squandered in this business now in this country than any one is ever apt to make out of it. The circular of a company that has seeds and roots to sell says that, by the investment of $100, $50,000 can be made in ten years. One is led to wonder why these fellows have not gone out of the business long ago, with more money than they know what to do with. They asked us for advertising rates in the *Modern Farmer*. It is needless to say that we did not quote them any rates.



GETTING WORKER COMB BUILT.

"Say, Doolittle, I came over to see you about having comb built so that it will be worker comb. It is like this: I have quite a quantity of combs left over from last year, which you know was a poor season, which are only partly built to fill the frames, and I wish the bees to complete them this summer, so that there will be as little drone comb in them as possible. How can this be done?"

"Well, friend Smith, it can be done in only one way that I know of, and that is by keeping the bees so that they desire *only* worker brood. When in this condition they will always build worker comb."

"Will you tell me so I can understand just how this is to be done?"

"When any colony is so weak that it has no desire to swarm, during or preceding the swarming season or honey-flow, such a colony will invariably build worker comb (so that worker brood may be reared until the colony comes into a prosperous condition), providing they do not have sufficient comb already built. Taking advantage of this fact I use all colonies which are too weak to store honey to advantage at the beginning of the honey-flow, treating them thus: Their combs are generally all taken away from them; but sometimes I leave one comb partly filled with brood, and always one of honey, giving the combs of brood to other colonies so that they will be still stronger for the honey harvest."

"What do you do with the combs which are taken away that may not happen to have brood in them?"

"These are stored away to hive new swarms on, if they are perfect worker combs; if not, then they are treated the same as I am about to tell you how to treat those only partly filled, after you have cut the drone comb out."

"Excuse my interrupting you. You see I wanted to know all about the matter."

"When the colony is fixed with its frame of honey, or this frame of honey and one having some brood in it, I next put in one, two, and sometimes three frames with starters in them, just in accord with the size of the colony after I have taken their combs away."

"But that wasn't what I wanted to know. I do not want to have full combs built, but frames partly filled, finished out with worker comb. However, I am glad you touched on this matter, for now I know how to get full combs built, should I wish to do this instead of purchasing foundation."

"I said what I did as a preparing of the way for the other, for the method is the same with the one as with the other; only where frames partly filled with comb are to be built out, the comb of brood is not left in the hive."

"Why don't you leave it now as well as with the building of full frames?"

"Because, where the bees are to fill the frame with comb from the starter, there will be no place for the queen to lay till they build the cells, only as she so lays in the remaining cells in the comb only partially filled with brood; and as she had all the room she needed before the combs were taken away from her colony, this sudden stopping of her laying would be an injury to her. But where partly filled frames are given she will have all the room she needs after the brood is taken, as well as before."

"I see the point now. Is the frame of honey as necessary with these partly filled frames as before?"

"Yes. In all cases I see that each of these colonies thus building comb has a frame well filled with honey; for should storms or cloudy windy weather come on at this time they would build no comb of any amount, and might starve; while with the frame of honey they will go right on converting that honey into comb, storm or no storm."

"How soon will they fill out the frames with comb?"

"If the right number of frames is given

to suit the size of the little colony they will fill them very quickly, especially when honey is coming in from the fields, and each comb will be filled with brood as fast as built."

"How long will they continue to build all worker comb?"

"If not too strong they will generally build comb of the worker size of cell until the bees begin to emerge from the eggs first laid in the newly built combs by the queen; but as soon as many bees emerge they will change to the drone size of cells; or if the little colony is quite strong in bees they may change the size of cells sooner than this."

"How do you tell about this?"

"As soon as the first frames given them are filled with comb I look to see how many bees they have; and if they are still well stocked with bees, or in a shape where I may expect that they may change the size of cell before they reach the bottoms of the frames, should I spread those apart which they already have and insert other empty or partly filled frames, I take out the combs they already have built, and thus put them in the same condition they were in when I started."

"Will they still work just as well?"

"No, not quite. They will not build combs quite as freely this time as they did before, unless there can be some young bees emerging; so, if I can conveniently, I give them a comb containing mostly honey and a little brood (if they have such a comb it is left with them, which is more often the case than otherwise) from some other colony, when they are ready to work the same as before. In this way a colony can be kept building worker comb all summer, or till the bees are nearly used up from old age, the colony becoming so small as to be unable to build comb to any advantage under any circumstances. But if just the right amount of brood is left, or given them, so they stay in about the same condition, they will build worker comb all summer by the apiarist supplying honey or feed when none is coming from the fields."

"But suppose you do not find them very strong on your examination — what then?"

"If not so strong but that I think they will still continue to build worker comb, instead of taking the brood away I spread the frames of comb (now built) apart and insert one or more frames between them, when these will generally be filled with worker comb before enough young bees emerge for them to change the size of cell."

"I think I understand now, and so will be going."

"Hold on a minute. Don't be in too big a hurry."

"Why? What is the trouble?"

"There is one thing I do not think you take into consideration as fully as you should."

"What is that?"

"You should always keep this in mind, whenever you find these colonies building drone comb: The combs they then have, all except the one mostly filled with honey, are to be taken away so that they may feel their need of worker brood again, when they will build cells of the worker size the same as they did on the start."

"Thank you for this part. I should hardly have known what to do when they commenced to build drone comb had you not stopped me to tell me this. And now, in parting, how many combs have you ever had built in this way?"

"I have had hundreds of frames built full of worker comb in this way; hundreds completed as you are proposing to do, and hundreds and thousands 'patched,' where I had cut out small pieces of drone comb which had gotten in in one way or another. If you ever have a mutilated comb you wish to have fixed so it will be a surprise to you, just give it to one of these little prepared colonies, and see what nice work they can do at 'patching' with *all* worker comb. This last is an item the bee world does not seem to take in fully, and it is something which gives me the most pleasure of the whole, especially where, through mice in winter, or otherwise, comb has been destroyed in spots where said comb was in *wired* frames."

Editorial
By E. R. Root.

COLORADO ANTI-HONEY-ADULTERATION LAW.

COLORADO has now a pure-food law which was secured through the influence and prestige of the Colorado State Bee-keepers' Association. This law provides that no person shall sell any adulterated or imitation honey or beeswax unless properly labeled with the percentage. Any violation of this law will mean confiscation of the goods, and a fine of from $25 to $500 on the offender. There is no doubt that the Colorado Association will see that the law is enforced. It has money, men, and power back of it. Score another point in favor of organization.

I happen to know, from private sources that can not be questioned, that adulteration, in spite of a good law against it, is flagrantly and openly carried on in San Francisco; but "any thing goes in that town," for it is a wide-open place. Gambling, drinking places, houses of ill-fame—every thing goes there without let or hindrance. A large amount of honey is adulterated in California, and the new California organization will do a great work if it can enforce the pure-food law, which is stringent enough if men can be found who will enforce it. Adulterated California honey is being sent East with the result that California extracted is getting a bad name in some markets. I hope to put the facts in my possession before the National Association if I can get the consent of the parties who have given me the information.

SQUARE OR TALL SECTIONS.

We have several times advised our readers that it would be money in their pockets to have their honey put up in tall sections—at least for some of the Eastern markets. There are some local markets in the East, and a good many perhaps in the West, where this is an exception of course. Here is a private letter which was written with no idea of anybody seeing it but us, from perhaps the largest honey-buyers or honey-handlers in the city of New York—Hildreth & Segelken. The extract from the letter speaks for itself:

> We note one lot of square sections from Mr. —— with the wooden side and isinglassed front. He is making a mistake in putting up his honey in this shape, and we wrote him so long ago. Besides, he has his name stamped on every comb. *You ought to impress upon him the fact that he should drop the square section and all its attachments, and put his honey up another season in the 4x5 section* or the 3⅝x5, whichever he chooses, as either one finds readier sale than the square section, especially the way he puts them up. Hildreth & Segelken.
>
> New York, April 30.

We buy large quantities of comb honey every season; and the simple fact is, that tall sections always move off faster than square ones. The question as to the style of sections is not a matter of opinion or preference or notion. We have "a condition, not a theory," to deal with. Many bee-keepers in the East, notably Hetherington and Doolittle, have been producing honey in these tall sections for some twenty years back, and they know a good thing when they see it—likewise the buyers to whom they sell. Honey in 4x5 sections in our locality goes off better than honey in 3⅝x5 sections. The former is a little better proportioned, has a thinner comb and a larger surface.

THE PROBLEM OF SUITABLE LUMBER FOR SECTIONS.

Timber suitable for making sections is getting to be more and more scarce. Formerly basswood was used by the furniture and box makers; but now it is being used by the planing-mills for making doors and door-frames, window-casings, and general house-furnishing. The scarcity of pine has made a heavy demand for basswood, and it will not be many years before many bee-keepers will have to begin to think of some other wood for sections; and yet there is nothing else that fills the bill, for one-piece sections at least.

One difficulty now is that bee-keepers are demanding so called snow-white sections for honey. Wood slightly on the cream order is just is good, and even better, because it helps to show off the honey by contrast. The idea that white basswood is tougher and stronger than good cream lumber, is an error. The time will come, is bound to come, when bee-keepers will be glad to get even cream sections, and at a great advance in price.

The fearful slaughter that is now being made in our forests, and which has been made without any effort to replace these valuable timbers, is going to put hardships on future generations. There are vast areas in Maine and Michigan where the land is good for nothing but to grow pine-trees; and yet no effort has been made by the State or national government to set out young trees to supply the wants of future generations. If we could grow pine and basswood as we can wheat and corn, the problem would be very simple.

Since writing the foregoing, the following has come to hand, and will explain itself:

> I agree with you on this white-section business being a fad. We use only No. 2 sections, and have done so for years, getting premiums on honey at our State fair the same as those that use the No. 1. There is absolutely no difference when the honey is put on the market, so far as dollars and cents are concerned. Commission men sell our honey for as much as any honey put in No. 1 sections. Customers never look at the section. Sometimes I think the cream color is preferable to the white, showing the white honey to better advantage, making or giving more of a contrast. H. G. Acklin.
>
> St. Paul, Minn., May 9.

CLIPPING QUEENS' WINGS—HOW TO DO IT.

To the veteran it may not be necessary to give any special instructions. But even some of these may be surprised to see that some other veteran's way of doing it is better than their own. The problem of clipping, to the beginner, especially if he has never accomplished the feat, seems very difficult; and for his benefit especially I show the method that I ordinarily employ.

After finding the queen on the comb I smoke the bees just enough to make them stick their heads in the cells. This gets many of them out of the way. Then I reach for the queen. It must be one quick grab. To chase after her with the fingers, occasionally touching the wings, makes her nervous as well as yourself; and the result is, she will start on a run, and then you may as well give up the job if you do not wish to run the risk of maiming her. At another time, when she stands in the center, several bees caressing her, make one grasp for the wings with the right hand, just between the abdomen and the thorax. Do not be afraid of crushing the wings; but be careful to avoid pinching or punching the queen on to the comb, and especially squeezing her soft abdomen.* If you catch her right she will be as shown in Fig. 1. She will bend the abdomen over, and reach with her hind legs around behind in the effort, just as shown, to push the fingers away. With the left hand, catch hold of her between the thumb and fore finger in such a way that the finger will be on top and the thumb beneath, see Fig. 3. If you grab her by the waist you need not be afraid of hurting her, for this portion of her anatomy will stand considerable pressure without injury. With the right hand take a pair of scissors and clip one wing at about the point shown in the illustration, Fig. 3; but do not clip *both* wings as there shown. In putting the queen back on the comb, be very careful not to let her drop. Let her down gently on the comb, or raise the fore finger and let her crawl from the thumb on to the comb.

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*The beginner should first practice on drones, then on worker bees. After acquiring the knack he can venture on a queen.

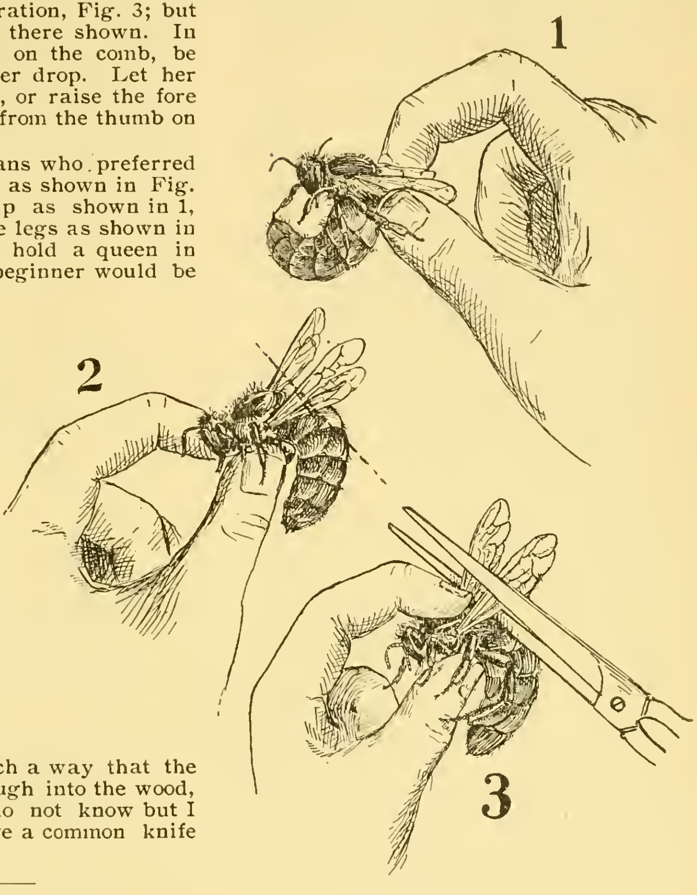
I have seen some veterans who preferred to grab hold of the queen as shown in Fig. 2. She is first picked up as shown in 1, then she is caught by the legs as shown in 2. While a *veteran* can hold a queen in this way, the average beginner would be liable to squeeze too hard and pull her legs off; then if you grab one leg only, the queen will revolve round and round till she twists it off, and in all probability take wing. The plan shown in 1 and 3 is the safer to employ.

There will be times when one does not have handy a pair of scissors. Very well, he is to pick the queen up as shown in 1; then hold her with the left hand as illustrated in 3. Now with the knife in the right hand, place one of the queen's wings on the corner of a hive-body or hive-cover in such a way that the knife-blade will cut through into the wood, severing the wing. I do not know but I would about as soon have a common knife if it is sharp as scissors.

PRICE OF HONEY TOO LOW.

It is a well-known fact that, during the last few years, the prices of labor, of manufactured articles, and of the general food-stuffs, have advanced materially. Honey has advanced, *but not in proportion*. If this is true, the bee-keeper of to-day must work on a smaller margin than he did a few years ago, when prices on his product were actually lower than now.

The A. I. Root Co. would gladly pay a higher price for honey; but we would not dare to offer more than the general market will allow, because we can not afford to pay 25 per cent more than our competitors would pay for the same grade of honey. The trouble is with the producer, after all. So long as there are producers willing to sell at any old price, just so long bee-keepers will work against each other. The readers of bee-journals would be willing to coöperate. But here is a producer who can't afford to take a bee-paper; or if he does he can not take time to study the markets and keep abreast with the times. His 20,000 or 30,000 lbs. of honey, sold at two or three cents less than the general market, will be quite sure to depress it to the selling price of this particular lot of honey.



If we can get bee-keepers organized in the several States and in different localities, as they are in Colorado, New York, California, and in several isolated districts, we may be able to get control of the bulk of the honey. When the cheap lots are all disposed of, then there might be a chance to advance.

I am well aware that the task seems almost hopeless; but if we give it up as a bad job we shall never accomplish any thing.

A KINK WORTH KNOWING; COGGSHALL ON ENTRANCE-CLOSING TO SAVE THE BROOD.

On the 2d of May, Mr. W. L. Coggshall, of Groton, N. Y., wrote that it had been very cold in his locality; that ice at that time was 1¼ inches thick; bees weak, and but little brood. He had been driving 30 miles from 7 A. M. to 7 P. M., closing the entrances of the hives. He carried along a pailful of sawdust, and threw a handful at each entrance, and in that way closed or contracted the entrances of 600 colonies scattered in I do not know how many outyards—perhaps eight or ten. When warmer weather comes, the bees will push this sawdust away themselves; and in the mean time, while it remains cool, the closing or contracting of the entrances will confine the heat on the cluster, putting the bees in better condition to resist the cold.

This is a good point, and I am sure it must have saved Mr. Coggshall a great amount of brood, many bees, and possibly earned for him a good many tons of honey.

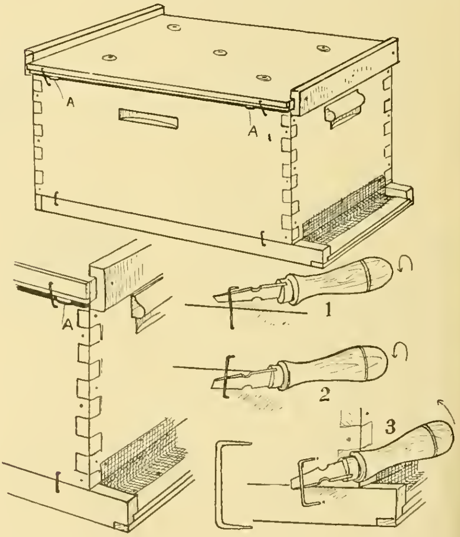
That leads me to say that, during very cold weather, I believe it would be good policy to close the hives of outdoor-wintered colonies in the same way. If there should come on a warm spell the bees could very easily remove the obstruction. When it is very cold they do not need much ventilation; but when it is warm, they can of their own will enlarge the entrance to suit their own requirements.

Beginners as well as some of the veterans had better paste this kink (from one of the most extensive bee-keepers in the world—perhaps the most so) in their hats, against the cold of next winter or spring. Mr. Coggshall has apiaries in Cuba, New York, Colorado, and Arizona. The number of colonies he owns runs up to something over 3000. Most of the men who work for him have acquired the name of "lightning operators." One of them is Harry Howe, now of Cuba. I saw one of his operators (not Mr. Howe) shake the bees off from something like 50 colonies during extracting time. It was on this occasion that Mr. Coggshall himself went through the "lightning act," and also exhibited that "professional kick" by which he removed or loosened the supers from the top of the brood-nests. Things were "lightning" there that day, let me tell you. I was almost glad when I got out of the yard; for the bees were just beginning to push their lightning stings clear through my clothing.

A CHEAP AND SIMPLE METHOD OF FASTENING BOTTOM-BOARDS AND COVERS FOR MOVING BEES TO OUTYARDS.

THERE are many of the veteran bee-keepers who do not even yet know of a cheap and simple method of fastening their bottom-boards to the hive-bodies. We have been using for years double-pointed tacks, or crate-staples, as they are sometimes called, and I supposed that every one knew of the trick. But in my travels over the country among bee-keepers I find a good many are still using ropes, and others are nailing through the covers into the bodies. When the bottom-boards are nailed from the under side up into the hive-body with an ordinary wire nail it is not an easy matter to separate the two parts when one desires to use an extra hive-body without the bottom, and it is harder still to drive the nails in if the bees are in. But four crate-staples, sometimes three, will make a very secure and reliable fastening, and yet one which can be easily broken with a common screwdriver, and whether bees are in the hives or not the staples can be driven in very easily. Two staples driven on each side, so as to span the crack between the bottom-board and body, will hold the two together very firmly. Or two staples in front and one in the rear or in the back end do very well. The cover may be secured in the same way.

But now let me tell you of a little trick we stumbled on to last summer, which will save dollars in time and wire cloth and wire screens. Instead of using an ordinary wire-cloth screen, take some pieces of one-piece section, ⅛-inch thick, and lay one piece at each of the four corners, on top of the hive-body. The cover is now set on top; and, as will be seen, there will be a ⅛-inch crack on the sides, front, and rear, between the cover and the body, and just narrow enough to exclude bees. The knee is now placed on the cover, when a crate-staple is driven in, spanning the body and cover just opposite or near one of these section pieces—see A A in the illustration, also the enlarged view in the lower left-hand corner. With wire cloth nailed over the entrance, and the cover secured ⅛-inch above the hive-bodies, we get sufficient ventilation, even on hot days, if the bees are not to be moved more than about two or three miles. But I would not move during the heat of the day. Let it be in the morning or evening.



Now, then, on arriving at the outyard one can very easily draw the staples, that secure the cover or bottom-board, with a common screwdriver. I would use, however, one larger and stronger than the one shown in the cut—one that will stand a good deal of twisting and prying. Push the point of the blade under the staple, near one of the legs. Give the screwdriver a twist. This will start one leg of the staple. Slip the screwdriver along to the other side, and give it a twist in the opposite direction. This will start the other leg. Slide the screwdriver back and forth a couple of times, giving it a twist each time when the staple will be removed.

The crate-staple we use is 1½ inches wide, having legs or points ¾ inch long. They can be obtained of any of your supply dealers, I think, at 15 cents per lb., or you can get them at the hardware store perhaps. A pound will be enough for a whole outyard of about 100 colonies. These staples, besides the convenience they afford in moving bees, are useful in mending splits or bad checks in hives. Indeed, we consider them almost indispensable in any bee-yard.

GENERAL MANAGER FRANCE AND WHAT HE IS DOING.

GENERAL MANAGER N. E. FRANCE is doing some hard work. He has before him now eight cases of bees under consideration. Two of these are for damages; two for poisoning by spraying fruit-trees, and two of honey adulteration. He now has, or did have on May 5th, 1202 names, nearly all of which are paid up. He has distributed 1500 copies of Bees and Horticulture, and has ordered 1000 more. Mr. France, if we may judge by the work he is doing, will earn his salary and more too. The Association is to be congratulated on having such an excellent man for the position. While he is not saying very much he is keeping still and sawing wood. The membership should stand by him, and help him in every way possible. Our recent unpleasantness does not seem to interfere very much with the flourishing condition of the Association. This is as it should be.

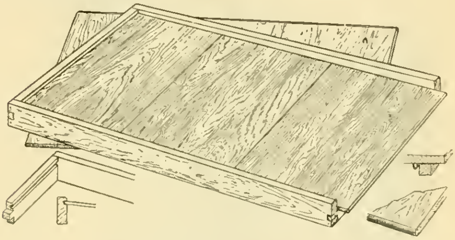
Mr. France has always been known as a hard worker and a successful business man. He is carrying these characteristics right into the Association work, and of course that presages success.

TRADE NOTES

BY E. R. ROOT.

THE NEW DANZENBAKER BOTTOM-BOARD IMPROVED.

Very recently we have made a slight change in the Danzenbaker bottom-boards which entirely overcomes the only objection that was ever raised against them. It will be remembered that this hive-bottom has a floor that is pivoted at the back so that it can be raised or lowered in front, closing the entrance up entirely or opening it to its full width. The floor-boards as we first made them had the grain of the wood running lengthwise. So made, they would shrink or swell, making them bind in the bottom-board frame, in some localities, especially if no allowance were made for the swelling of the boards. We now make the floors with the boards running *crosswise*, and bind them together with galvanized V-shaped channel irons. The ends of the channels fit into corresponding saw-kerfs cut in the ends of the boards. One long iron on each side holds the boards together, and makes a nice smooth anti-friction edge to slide up and down against the side rails of the bottom-board frame. Thus constructed, shrinking and swelling can not in the least affect the movement up and down of the tilting floor-board for the purpose of increasing or decreasing the depth of the entrance, because boards do not swell lengthwise. The three boards are tongued and grooved together, so that the cracks will always be bee-tight.



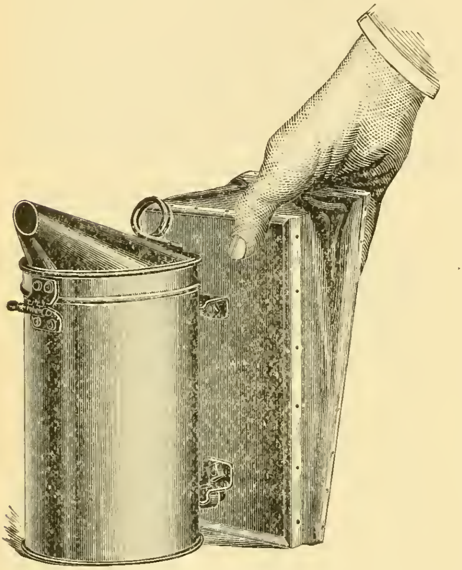
In the lower left-hand corner will be seen how the floor-board is let into a groove cut in the back cleat of the frame. This groove makes a fulcrum or hinge for the board. On the right of the illustration will be seen a staple driven on the under side of the floor-board. When this is drawn forward slightly, the staple will rest on the end rail, reducing the depth of the entrance just in proportion as the staple sticks above (or below, rather) the floor-board. By raising the floor-board, and drawing it forward slightly, the entrance can be contracted down to about ¼ inch deep. When warm weather comes on, and the honey-flow is gone, a slight pressure against the floor-board will cause it to enter into the groove at the rear, and allow the staple at the same time to slip past the rail, giving full ⅞-inch depth to the entrance.

HOW TO USE OR HANDLE A BEE-SMOKER; THE RIGHT AND WRONG WAY.

Within the last five or six years most of the modern hot-blast smokers have been made in such a way that, while in use, the barrel will stand perpendicularly, leaving the coals of fire or hot embers to lie on the grate while the fumes free from sparks or embers are blown out through a curved or deflecting snout. The position of the bellows likewise during the interim mentioned has been reversed, putting the large end at the top instead of at the bottom, as heretofore.

I have been surprised many and many a time to see how awkwardly bee-keepers handle the modern smoker. To my notion there is only one way, and that is shown in the accompanying illustration. The thumb should be on the side of the bellows next to the stove. This lets the hand hang in the natural position without any twist at the wrist. To handle the smoker, proceed as follows:

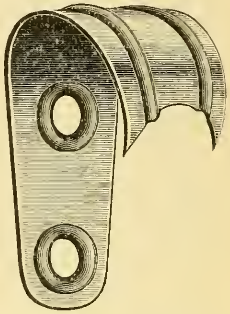
Stand in front of the hive, with the entrance at the left and the smoker in the *right* hand as shown in the illustration. With the left, pry the cover loose, then with the other holding the smoker in a perpendicular position, or only slightly tilted, perhaps, blow a little smoke over the tops of the frames. After the cover is removed, and the bees have been sufficiently quieted, set the smoker down close to the *back end* (not the front) of the hive and on the ground. In doing this, the position of the wrist and hand does not have to be changed. Now, then, if the bees begin to act obstreperously, all one has to do is to reach down, grab the smoker in the most easy and natural way, as shown in the illustration, and blow the smoke over the frames without twisting the wrist or the hand in an awkward angular kink.



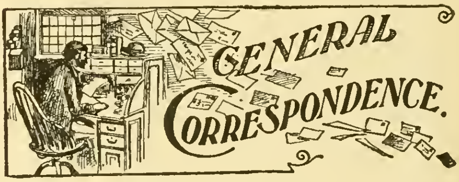
If one gets to using an implement wrongly, he will waste seconds, minutes, and hours of time as the weeks and months roll by. Every movement should be calculated to get the maximum results with the minimum of time and actual muscular force expended.

I have seen bee-keepers pick up the smoker in the left hand, hold it in an awkward way which I can hardly describe, and then when they were through lay the smoker down in front of the entrance, right in the height of the honey-flow. Or perhaps they will lay it on its side behind the hive; then when they want it for an emergency it can not be found.

There are many bee-keepers who have a fashion of losing their smokers. Perhaps the weeds are so deep around the hives that, when the smoker is set down on the ground, it can not be seen. To accommodate all such we have a very convenient hook which is attached to the rear of our smoker-bellows, see cut. This permits of the smoker being hung on the hive where it can be easily seen. Then it has another advantage, that, when one is carrying an armful of supers, using both hands and arms, he can hang this hook over the little finger of one hand, leaving the whole hand or both hands perfectly free to hold the armful of stuff while he walks to the other part of the yard.



These are simple little things; but the man, as I have already suggested, who can save the minutes can save the hours and the days. When labor is high-priced, and can not be had, one's own time should be economized in every way possible. Why, I have seen bee-keepers grab an armful of supers, take them some distance from the point where they were working, and then go back and get the smoker. May be they forget all about the pry and screwdriver for loosening the frames or covers, and have to make another trip.



EIGHT-FRAME JUMBO HIVES.

Apple-blossom Honey—the Quality and Quantity.

BY J. A. CRANE.

Some time ago the question appeared in Gleanings, why a hive, L. length, and holding eight frames the same depth as the "Draper barns," would not be a good thing. Now, that is just the hive for me. I have used them exclusively for ten years, and never lost a colony in one of them, and will show my record of honey-yield with any one in this section. They are no new thing here, nor original with me, having been used by bee-keepers in this town for over twenty years. They take regular eight-frame supers for sections, and with half-depth supers and frames they make an ideal extracting-hive. I believe the editor himself has, or did have, a leaning toward a deeper frame than the standard L.

I build my own hives; but these hives are made and kept in stock here in town; and more than 90 per cent of the bees in this section are kept in them. I believe the bees winter better, and build up earlier in spring, than in shallower hives, which with me is a vital matter, as it gets me in shape for the first (and sometimes the main) honey-flow here — that from apple-blossoms.

Doolittle once said that, if we could have the same conditions in the hive during apple-bloom that we have during basswood, he thought we could get nearly as much honey as from basswood. Now, there is a great deal of basswood here; but the crop is very uncertain—three good yields in ten years, and only twice in that time did we know it would fail before we found it out by experience. Those causes were late frosts.

This county (Wayne) stands fourth in the United States as an apple county, and we can "know it last fall" whether the orchards will blossom or not this year; and also that, if the weather is favorable, and our bees in shape, we shall get honey.

In 1901 I extracted from three hives (supers and brood-nest) three times in ten days, taking from each, at each extracting, a twelve-quart bucketful of honey. Ripe? Yes, it weighed 12 lbs. 3 oz. per gallon. It candied solid the next January, and was pure white—nearly 100 lbs. per colony. My whole yard averaged over 50 lbs. per colony. Now, don't think I mean to say that such a crop can be secured *every* year; but I have had four yields of apple-blossom honey to three of basswood, so I think it well worth working for, seeing that you need prepare for it only when the trees are going to blossom full.

Now about the quality. I retail all or nearly all of my honey; and when a customer has once had apple-blossom honey he will always call for it again, although I have several other kinds — raspberry, clover, basswood, and generally buckwheat; and last year, for the first time, I had some catnip. It being a very wet season, the stuff grew quite rank, and farmers were too busy, when it did not rain, to cut it: consequently the bees made a drive on it, wet or dry, rain or shine. Wherever there was a bunch of catnip it would be covered with bees from morning till night. Well, just before buckwheat came I extracted the crop, and — whew! I have it yet. I don't want any more. I can't sell it, can't eat it, wouldn't give it away — going to make bees of it. If all catnip is like this, every pound of it sold on the market will spoil the sale of five pounds of good honey. I am strongly of the opinion that, if all low-grade honey were kept at home, the money realized from what is sold would be more than is now received from the whole.

Speaking of new ideas, in GLEANINGS for April 1, an old bee-keeper of more than fifty years' experience recently told me that comb honey treated with bisulphide of carbon could be eaten with impunity by persons who could not otherwise eat honey at all. He cited some cases that came under his observation the past year. If this is the case it would seem that the use of the drug does not injure honey in any way, as has been argued in the papers more or less.

Marion, N. Y.

[For extracted honey I do like a large deep frame, because I know from personal experience that powerful colonies can be reared in such-sized frames ; but for my own purpose I should prefer the ten-frame Jumbo to an *eight*-frame. An eight-frame standard Langstroth or a ten-frame Danzenbaker has about the right capacity for the production of comb honey; and to my notion a ten-frame Jumbo, for some localities at least, offers certain advantages in the way of a non-swarming extracting hive not possessed by a hive of smaller dimensions. The eight-frame Jumbo is no larger in actual cubical capacity than the ten-frame Langstroth. If we are going to have a big hive, why not go the whole figure? The Dadants found the ten-frame capacity none too large. We have ten-frame Jumbo hives in our yards; and such great cards of brood, and such powerful colonies! It does one good to look at them and see them roll in the honey.

I tasted the honey at Dr. Gandy's that had a slight flavor of catnip. It was not unpleasant. But a pure-catnip honey might be very strong, and totally unfit for the market. I think we have had other reports to that effect. In the same way, hoarhound honey—the pure article—is vile stuff. But a very little of it mixed with some other good grade of honey gives it a nice flavor that is not unlike the hoarhound candy of our childhood days.—ED.]

THE BRODBECK SMOKER.

A New Principle in the Construction of Smokers.

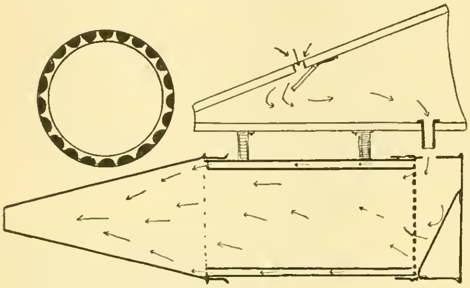
BY GEORGE W. BRODBECK.

The smoker which is herewith represented has been in use for several years, letters patent having been issued to me Oct. 11, 1892. Owing to difficulties in manufacturing them here on this coast, their introduction has been somewhat limited. The constant importunities of those who have tried it and know of its good qualities induce me to present it to the public.

The illustration with the straight nozzle is defined as follows: A detachable nozzle, a fire-barrel inclosed by a cylindrical casing, and a detachable blast-chamber. The fire-barrel and cylindrical casing might be called an inner and outer barrel—the inner one the fire-barrel, the outer one the casing, a space of ¼ inch or more separating the two, held by bent flanges on the fire-barrel, and so cut as to permit ingress and egress of air, or, in other words, an air-passage between the two.

The detachable blast-chamber at the rear consists of the usual fire-grate and forwardly inclined blast-deflector extending obliquely upward from the rear of the blast-chamber to and attached to the grate, sloping upward and forward of the blast-orifice in which the blast enters from the bellows.

The detachable blast-chamber caps on or over the outer casing, the same as the nozzle. In practice we first remove the blast-chamber, inserting the fuel, whatever this may be, into the fire-barrel, the composition of which, in whole or part, should be of such nature that it will ignite readily by the application of a match, after which we replace the blast-chamber and proceed to use the bellows as is customary with other smokers. To replenish the fuel we insert it in the nozzle end the same as in the Corneil or Bingham.


BRODBECK'S DOUBLE-BLAST SMOKER.

The smoker being filled, pressure on the bellows forces the air into the orifice of the blast-chamber, striking the forwardly inclined deflector, passing on through the grating into the fire-barrel and the air-space between the latter and outer barrel. The course of this forced draft is shown by the darts on the illustrations.

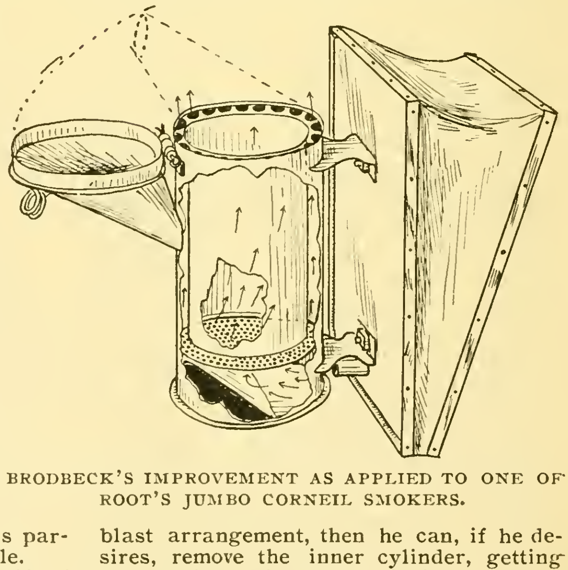
The advantage derived from the use of the deflector is the increased force of the draft through the fuel, and the space between the double barrel; it also reflects the heat from the fire, thus modifying the consequent heating of the end of the blast-chamber. The insertion of an inner barrel or tube, with the air-space separating it from the outer one and the air, ingress openings at the ends permit a portion of the blast to pass through and out at the nozzle end without passing through the fuel, thus modifying the hot air, and thus partaking in part of the cold-air principle.

This air-passage also prolongs the life of the outer barrel; and in preventing extreme heating it affords better protection to the individual. The burning-out of the inner barrel is not a serious loss, and will not incapacitate the smoker, as will the destruction of the outer one, and the former can be replaced at small expense. The removable breech and nozzle make it an ideal smoker to clean and to make necessary repairs. The inside fire-barrel is also just as effective in the Corneil as in my own.

Los Angeles, Cal.

[It will be noticed that the smoker shown at the top of the illustration is breech as well as muzzle loading; and from the evidence in hand, Mr. Brodbeck was one of the first to use the breech-loading smoker. But he has gone one step further by putting on a special blast arrangement. In effect this makes a combination of hot and cold blast. Part of the air from the bellows is deflected into the space between the outer and inner cylinder. The rest passes through the fire so that we get a double blast. The cold-blast principle does not give the dense smoke of the hot blast. While the smoke is not so subduing as a moderate blast with strong pungent smoke, there are certainly times when a strong blast—that is, strong blowing—is an advantage. Mr. Brodbeck secures, to a certain extent, the advantages of both hot and cold blast in one smoker.

I have made some tests myself, and I am not sure that the increased blast fully offsets the reduction in the density or subduing quality of the smoke. There are some bee-keepers who would prefer the Brodbeck principle, and some who would prefer the hot blast pure and simple. For the purpose of experiment we can furnish the Brodbeck principle in the Jumbo Corneil smoker, as here shown. One can try the Brodbeck blast arrangement, then he can, if he desires, remove the inner cylinder, getting back to the old hot-blast principle.


BRODBECK'S IMPROVEMENT AS APPLIED TO ONE OF ROOT'S JUMBO CORNEIL SMOKERS.

Mr. Brodbeck secures one very important advantage; namely, that outer barrel, on account of its peculiar blast, is kept from becoming excessively hot. Many would consider this a decided improvement.—Ed.]

COMB-HONEY PRODUCTION.

How to Obtain the Best Results Both as to Quality and Quantity; When and How to Get the Bees Ready for the Harvest. Part 2.

BY OREL L. HERSHISER.

Continued from last issue.

While very strong colonies are most desirable in the production of fancy comb honey, it is also of great importance to prepare them properly for work in the sections, and to manage them through the honey harvest in such manner as to make the entire working force effectual. To that end we should keep the field workers together and not allow that portion of the colony which is capable of honey-gathering to become divided, and one part thereof separated from the other, by inattention to natural swarms or haphazard forced swarming.

The colony may be prepared for comb-honey supers according to one of the several systems which have been found to be good, the method employed depending upon the requirements of the apiarist, whether he desires to produce all comb honey or whether he wishes also to produce extracted honey; whether he desires to add to his number of colonies, and, if he does, whether he prefers to do so by natural or by forced swarms. The varieties of honey-producing flowers. their extent, and the number of separate honey harvests through the season should also be carefully considered. If the main surplus season comes early, and there is no fall flow, the energies of the apiarist must be devoted to getting his bees in the best possible condition for this one harvest. If it comes late, or is continued over a good portion of the season, more time may be given in preparation, and stronger colonies built up in expectation of the long season's work, always bearing in mind this general rule: to breed the colony up to the greatest possible strength in field workers, in expectation of the main honey harvest, and, on the other hand, to avoid, as far as possible, the rearing of bees which will not reach the field-working age till the honey harvest is past, and which will, therefore, be wasteful consumers. A thorough knowledge of the honey-producing flora within range of the bees is necessary to an intelligent application of these rules.

NATURAL SWARMS.

If the colony is allowed to cast a natural swarm it should be hived on the stand of the colony from which it issued, substituting the hive with the swarm for the parent hive, removing the latter to a new stand, thus making a strong swarm and keeping the field workers together. A colony that has swarmed, if treated in this manner, is unlikely to cast an after-swarm.

It frequently occurs that the super of sections on the hive which swarms is left unfinished. This unfinished super should be placed as the first one on the hive containing the swarm immediately after it is hived or at the time of hiving.

If the parent hive be placed as close as possible to the side of the hive with the swarm, the latter being on the parent stand, the entrance facing in the same direction, leaving it in this position a week, and then removing it to a stand ten or more feet from the parent stand, the bees from the parent hive, which have become old enough to fly during that time, will return to the hive with the swarm, adding greatly to its strength in field workers. If there is a good fall flow of honey the parent colony will gather ample winter stores, and may yield a little surplus honey; but, having been so thoroughly depleted of field workers, it will be slow in acquiring the necessary strength for surplus-honey gathering.

The brood-frames of the hive containing the swarm should be provided with foundation starters, not more than two inches in width, and a queen-excluding honey-board should be used to keep the queen out of the super. If a shallow brood-body is used, no contraction of the brood-space will be necessary. Brood-bodies with deep frames should be contracted to a space equivalent to six or eight Langstroth frames. To prevent possible confusion and scattering of the bees, among other colonies in the apiary, when returning from the fields to their accustomed stand and home, the appearance of the front and entrance to the hive for the swarm should be, as nearly as possible, like that of the parent hive. It is a great advantage and convenience to have hives of uniform pattern.

DEQUEENED AND REQUEENED COLONIES.

An effectual non-swarming method consists in selecting the best frames of brood from both bodies of the double brood-chamber, using a sufficient number to fill one body, on the same stand, depriving the colony of its queen. In eight days the colony thus prepared should be examined, and all queen-cells removed, making it hopelessly queenless, after which no swarm will issue if queen-cells have not been overlooked. The other body, and the combs of brood not used in the hive prepared for comb-honey supers, may be employed in building up some weak colony; or colonies too weak for comb-honey production may be divided into nuclei and built up with the frames of brood, thus providing a means of preserving the queen from the colony just prepared for the comb-honey super; or the combs of brood may be used to strengthen a colony which is almost in condition for comb-honey supers; or the body, with the combs, may be used as an extracting-super on a colony run for extracted honey; or they and the queen may be disposed of in some other way as suggested by the requirements of the apiarist. A colony run in this manner requires no honey-board. The colony should be requeened at the close of the swarming season.

FORCED SWARMS MADE BY DIVIDING.

These strong colonies in double brood-bodies may also be treated as follows:

About four weeks before the storing of the first surplus honey may be expected to commence, which will be from white clover, in regions where that is an important honey-plant, but not earlier than the time when, if the bees swarmed naturally, the brood in the hive from which the swarm may have issued would not chill, remove the lower body of the double brood-chamber, placing it on a stand by the side of (and as close as possible to) the hive from which it was removed with the entrance in the same direction, being sure to have the queen in this removed body. In place of the body so removed, substitute one containing clean frames with narrow foundation starters, not more than two inches in width. Now all the field-working bees will return to the hive on the old stand, the upper body of which contains abundance of brood and young bees. Queen-cells will be immediately started, usually along the lower margin of the combs in the upper body, and in due course of time the colony will contain a young queen. If the precaution is taken of removing all but one selected queen-cell, there will be no disappointing division of the colony by one of the several queens, which would otherwise develop, swarming out with part of the bees.

In anticipation of making the division of the colony, as here described, queen-cells may be reared from our choice queens, and supplied, one each, to the colonies under preparation, thus improving the stock of the whole apiary, and at the same time very materially forwarding the work of preparation.

If some honey is coming in, work will progress in the lower body; and by the time for putting on the supers the brood-comb starters will be sufficiently drawn out for the queen's use, and she will not be likely to enter the sections when the super is substituted for the upper body. If the manipulations have been performed at the proper time, the brood in the upper body will be about all hatched at the time when the main honey-flow commences in earnest.

It is advantageous to the apiarist to know the condition of his colonies as to queens, and it is advisable to proceed with the work of preparation with the aim of bringing the young queen to the laying age at the time of putting on the supers, that he may ascertain whether or not she is laying. When the supers are needed they should be put on if the queen has not commenced to lay.

At this time, just as honey commences to come in rapidly, remove the hive containing the old queen, from the side of the hive under preparation for comb-honey production, to a new stand, somewhat removed from the comb-honey colony. The field-worker bees from the old colony will now return to the new one, adding greatly to its strength. Now shake the bees from the frames of the upper body of the comb-honey colony into its lower body, or in front of it, and use this upper body and its combs as an extracting-super for the hive with the old queen.

If no increase is desired, when the colony on the old stand is prepared for the comb-honey super, and honey is being gathered, remove the colony containing the old queen to the opposite side of (and as near as possible to) the hive prepared for comb-honey supers, with the entrance in the same direction. In a week remove it to the now opposite side in the position it formerly occupied, and continue these weekly movements from side to opposite side throughout the honey harvest, after which the queen may be disposed of and the remaining brood used to strengthen the weaker colonies, and the combs extracted. By this method the comb-honey colony is kept supplied with worker bees sufficient to keep the hive and super crowded with a strong working force.

This method of keeping the comb-honey colony full of bees throughout the honey harvest, when no increase is desired, may also be used in connection with the management of natural swarms as described under that head, making the first move of the parent colony to the opposite side of the comb-honey hive at the end of one week after the swarm issues, and proceeding thereafter according to the above description. It is not advised to strengthen colonies in this manner when honey is not being gathered.

The greatest obstacle to success in extensive commercial apiculture, especially in comb-honey production, has been the inability of the apiarist to bring swarming under control, and hence the lack of systematic work in the apiaries. A perfect, reliable, and practical non-swarming system has been frequently sought, with commendable zeal by numerous experimenters, but the coveted prize has often "eluded their eager grasp;" but if it is true, as has been alleged by some of the *savants* of apiculture, that a colony with a young queen will not swarm during the season she is reared, and if this rule may be depended upon to be reasonably certain, this fact, in addition to the safeguard against swarming found in the use of a brood-chamber with narrow starters in the brood-frames, furnishes the essential framework of such a system. Moreover, by this system we obtain colonies of great strength, especially if no increase is made, in which case we practically have the use of two queens in the comb-honey hive, resulting in an increased amount of fancy comb honey with a minimum amount of labor. Such a system will make it possible to manage out-apiaries with the assurance that the working force is not absconding in the absence of the apiarist at the only season of the year when it is of value to him, and the work of the several out-apiaries may be perfectly systematized.

Other methods of making forced swarms, which have been technically designated by the terms "shook," "brushed," or "driven" swarms, and the system of management in reference to them, have been so thoroughly described during the past two or three years as to require no further treatment here, except as a further caution to the apiarist, to reiterate what has been frequently stated, that such swarms should not be made till shortly prior to the time when the colony would have swarmed naturally.

To be continued.

INCREASING THE DEMAND FOR HONEY.

The Folly of Talking only in the Bee-papers where only a Few Bee-men are Interested; the Value of the Local Newspaper as a Means of Interesting the Public.

BY WM. M. WHITNEY.

Mr. Editor:—The great question among practical bee-keepers at the present time seems to be, "How can a greater demand for honey be created, and, as a consequence, a better price be obtained?" In transportation, manufacturing, and large commercial operations, combination appears to solve the problem. *Bacillus combinus* seems to be floating in the atmosphere, and bee-keepers are becoming infected. It is thought by many that, if all the bee-keepers of the country should combine, they would become masters of the situation, and that better and more uniform prices would be obtained for the products of the apiary. Very true; but *if*—"there's the rub." To secure organization and combination among any class of producers so widely separated, the majority of whom are operating only in a small way, is next to impossible. When have farmers, fruit-growers, poultry-raisers, or any other class of producers in a small way, scattered widely over the country, ever been able to combine so as to control the price of any commodity they produce?

It is true that the California fruit-growers have, to some extent, been able to fix prices of fruit by organization; but suppose the same fruits were being cultivated by every farmer and small-fruit grower all over this country, as honey is being produced, do you suppose any combination could be formed to control prices?

In the first place there is but a small per cent of the bee-keepers who take interest enough in the business to join even a local organization, or who take any literature on the subject of bee-keeping. They treat apiculture as an insignificant branch of farming, like poultry, which is allowed to care for itself, as a rule. If there happens to be a surplus, it is taken, like butter and eggs, etc., to the local grocer, and exchanged for such supplies as are needed, and at such price as the grocer sees fit to give. The price, usually a low one, is fixed, not by the producer, but by the middleman, and is the standard price for that locality. What is the bee-keeper with a few hundred pounds of surplus choice to fancy honey to do but to take what he can get, or go into competition with the grocer and peddle it? Few persons are adapted to doing that kind of work, or have the time in which to do it. He might ship to some commission house, but that so often proves so unsatisfactory that he thinks a bird in the hand is worth two in the bush, so takes what is offered at home.

This may be said to be an argument in favor of combination. Grant it; but with nine-tenths of the bee-keepers in the country outside of any organization, whom you could not whip in with a cat-o-nine-tails, how are you to combine?

Now, it seems to me that the surest and best way to create a demand for honey, and thus enhance the price, would be to get the local press interested; i. e., publish through the local papers instruction or information regarding the uses and benefits of honey as a food, a medicine, etc. It is surprising how little is known by the majority of people, even in the country, of the value of honey in numberless ways in a family. If we who are interested in this matter (and all bee-keepers ought to be) would thus place before the people in a judicious manner the ways in which honey may be used to great advantage, many families that have considered it a luxury in which they could not indulge might be induced to try it. For instance, here is a family fond of warm biscuit and honey, or pancakes and honey, but think they can not afford it, but would adopt it if they were told that a syrup of granulated sugar, costing about 3 cts. per lb., mixed with good thick extracted honey, costing in bulk, say 12 cts. per lb., made a very fine syrup for the purpose, with all the flavor of honey, and making the average cost only about 7 cts. per lb. How much better this would be for the consumer than to buy the stuff put on the market by the trade generally, with nobody responsible for its manufacture, and composed principally of glucose or something worse! When mixed at home we know what we are using.

The above is simply an illustration of what might be done were we to turn our attention in the direction of the local papers. We may talk till doomsday through the bee-journals, that nobody sees but the bee-keepers, and but few of them, I'm sorry to say, and it will never create a demand for honey one iota. What would we think of the business sense of a manufacturing establishment that exploited its goods and wares through the medium of a publication that fell into the hands of its competitors only? That is substantially what bee-keepers are doing in their efforts to market their honey. They talk in the bee-journals; they talk in conventions, where there is no one to hear but themselves. Why, it almost seems like lying awake at night to talk to oneself.

Our *queen* bee-keepers can give numerous recipes for cooking with honey as an ingredient; simple remedies for various complaints with honey as an important factor, etc., until the use of honey will be considered a necessity. I repeat, we must get at the public through the local newspaper. Then when the use of honey has become so popular that the crop of the small bee-keepers is consumed in the small towns and country, and the people cry for more, the large producers can easily combine to control prices in the large commercial centers. Then prices will boom, and the millennium in beedom will be ushered in until the Attorney-General gets after us, and puts us, bees and all, in jail for unlawful combination.

Geneva Lake, Wis.

[There is a great deal of truth in what you say. Bee-keepers should contrive somehow to get articles into their local papers, giving general information about the production of honey—how it is thrown out by means of the extractor, etc. If all of our subscribers would volunteer to send a communication to their local papers, describing how they produce comb honey, and inviting any one interested to come and *see how honey is taken from the hive*, it would stimulate a local demand for honey, and do some permanent advertising that would be of great value. We are printing by the thousands our honey-leaflets, and they are being sent out all over the land. These, as some of our subscribers know, go on to tell about the wholesomeness of honey; why dyspeptics can eat it when they can not take any other sweet; about the different kinds of honey, and finally winds up with a long list of honey cooking-recipes. This leaflet was written by Dr. C. C. Miller, and all the recipes have been tested carefully, so that we *know* they are good.

They are furnished at practically their cost to us; and any bee-keeper can have his business card printed on them at a slight additional cost. If one of them is put in every package of honey sold or handed out in bunches of two or three dozen to the grocers, to give to their customers in turn, a largely increased demand will be the result.

I believe most thoroughly in organization, but it would be futile to attempt any thing in the way of one national in its scope for the purpose of handling honey. Local or State exchanges must first be put on a practical working basis. As is well known, the Colorado association has demonstrated already what can be done; and California has started out with flying colors.—ED.]

BEE-PARALYSIS.

How to Cure; a Rational Plan.

BY A READER.

I notice several inquiries of late in the different bee-papers in regard to bee-paralysis. I have had several years' experience with this disease. Several years ago, when I kept bees in box hives, I noticed this disease, but at that time I did not know what the trouble was, as I was not posted in bee lore; but since keeping bees in frame hives, investing money in them, and depending partly on them for a living, I have studied the disease a good deal, for I have had more or less of it to contend with every year since.

When the disease first appears the bees will turn black, look slick and shiny, and have a trembling motion. Not every bee that takes the disease turns black; for I have seen them die with it without ever turning black; but they all have a trembling motion; there is always a less number of dead bees around the entrance during a good honey-flow, due, I suppose, to greater activity among the bees at this time, causing more of the affected bees to die out in the fields, as I have found them dead at their watering-places that, to all appearances, had died with this disease. I also have found them dead around flowers out in the fields. I have seen them in front of the entrances of their hives with pollen on their legs, trembling, shaking, dying with this disease; so it seems from this that it is very sudden in its attack. At times this is a very peculiar disease, as some colonies never become affected with it, and some that have the disease get well without any treatment, and some will die in a few weeks if they are not treated, while others will dwindle along all season and give no surplus honey, and finally get well.

I believe some writers have claimed that bad food causes the disease. I don't believe food has much to do with it. In the spring of 1899 and early summer of that year, I had five colonies of bees standing in my yard very close to the dwelling. One of these colonies took the disease; and as I was very busy I never moved them. In about ten days the one next to the affected one had taken the disease, and so on down the line until all had it. One evening I came home, and had a case of robbing on hand. My favorite colony down among the other bees, some fifty yards distant, was doing the robbing. I soon put a stop to the mischievous rascals, but they had almost robbed them out. I expected this colony that did the robbing to take the disease; but, to my surprise, they were never affected in the least. These bees all had stores gathered from the same source. Shortly after this I moved these five colonies some distance from home, as I wanted to get them away from the dwelling. I let them stay two weeks, and moved them back. I noticed after moving them the second time that there were not so many dead bees at the entrances of four of them; but the fifth one, however, was dying badly, and was very weak, so I moved them again, this making the third time that I had moved them. This last move helped them so they soon got all right. But I got no surplus honey from them that season, while the average from colonies not affected was about 100 lbs. per colony. My honey crop for that year was cut short about 40 per cent on account of this disease; and hence I was well nigh discouraged with bee-keeping; but moving these diseased colonies, and noting the effect it had on them, I got the idea in my head that this disease could be cured if properly treated.

Late that summer I had a colony that was about as badly affected as any I had ever seen. While watching them at work dragging off dead and dying bees, and in some instances flying with them and dropping them right in front of the entrances of other hives, fast spreading the disease all over the apiary, the idea occurred to me that if I could trap these dead and dying bees, and destroy them, I could effect a cure. So I dug a ditch six inches wide and three inches deep in front of this hive, the ditch extending around to the sides of the hive. It is necessary for the hive to stand very close to the ground. The healthy bees will drag the diseased ones out aud fall into this ditch, and have to leave the sick bee there, for it can't fly out; and all sick bees that crawl out of their own accord will fall into this pit and can't get out, so you have these diseased bees trapped. I go out every evening and take up these dead bees, and burn them, destroying the disease germ, hence I effect a cure. I have tried this remedy several years, and have never failed yet to cure a colony thus treated; in fact, I would not be in the bee business to-day if I had not discovered this remedy. It usually takes about ten days to effect a cure.

[The essential part of the cure above mentioned seems to be isolation. Other writers have said that bee-paralysis could be cured if the bees could be given a chance to carry away the diseased and the dead. —Ed.]

A CHEAP AND SERVICEABLE WAX-PRESS.

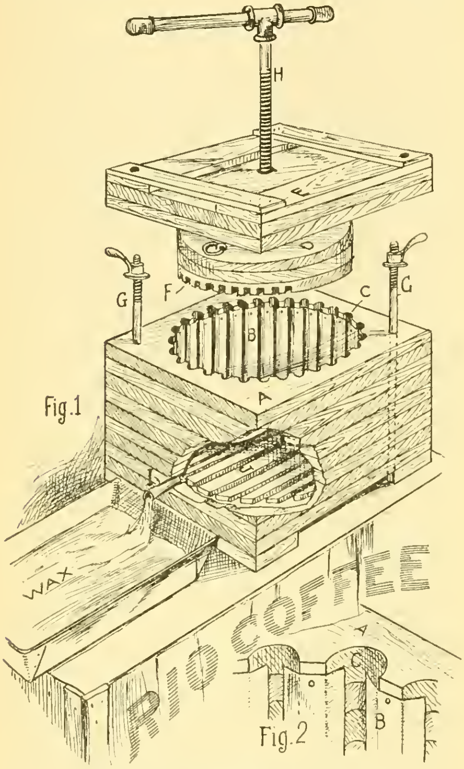
How to Render Wax in a Wash-boiler, and Squeeze it in a Separate Press without Freezing or Chilling.

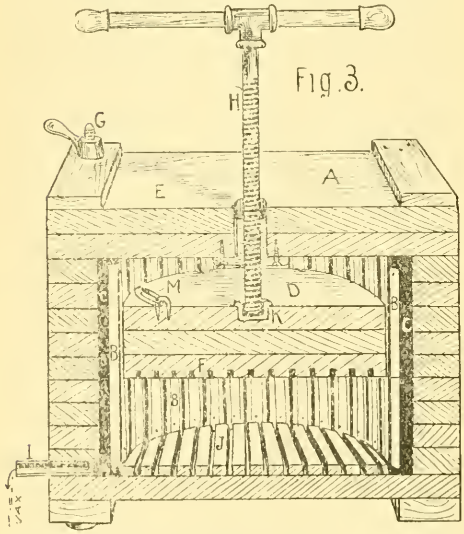
BY F. A. SALISBURY.

For a number of years we have been interested in wax-presses, having used nearly all styles. The Swiss wax-extractor was the first one, but we found it too slow, besides wasting a big lot of wax. We next tried quite a number of processes, but found all to be of no practical use. At last we tried a press, and found it to be better than any thing yet tried. We have gotten out about 150 lbs. of wax in one day with the help of a large press that used a common jack-screw; but this was too large for ordinary use, and took up a great deal of room. Bee-keepers do not, as a general thing, have any thing besides a kitchen stove on which to work melting up combs. Quite a few have asked us from time to time how to render out wax. but we could only tell them to use some kind of press. At last we tried to get up something that the average bee-keeper could afford to buy, and a year ago made a press, but found it to be too weak to stand such a pressure as was given to it by a screw. This last winter we tried our hand again, and think we have something that will be a benefit to all bee-keepers, for by its use all the wax that is possible to be pressed out with any kind of press can be gotten out by our cheap and simple press. There were quite a good many things to think of when inventing, and some of them are as follows:

1. The wax was to be kept hot as long as possible to prevent it from freezing in the press.
2. The follower should go down as nearly level as possible, no matter how the slumgum under it was placed.
3. It should all be inclosed, so that wax would not be spurting out on the floor.
4. The top piece that holds the screw should be perfectly immovable sidewise.
5. The whole top should be covered to prevent the escape of heat while pressing.
6. The bolts that go through the wood part should also be perfectly plumb at all times. This can not be done unless the bolts are through wood, for they will move slightly, and by so doing the screw will be tipped one side, and the pressure will tend to push the follower to one side. With the press you can get out all the wax from old combs that you can melt up on two ordinary kitchen ranges. We have gotten out 49 lbs. in one day with it, of nice yellow wax. We have just seen 153 lbs. of wax gotten out by the Ferris wax-extractor, and it was of a pretty dark color. Now, it is known that iron will turn wax dark, and zinc green. We know this to be so, for we tried zinc or galvanized iron for melting up wax for foundation, and found it would be green after standing some time. With iron the wax will be dark in color. We believe all manufacturers of foundation use wooden tubs in which to melt wax, just for the reasons I give. Our press is all wood, and will impart no coloring to the wax.

In using the press a common wash-boiler should be used to boil the combs, and they should be boiled till they are thoroughly melted. This is known by a foam coming on top like soapsuds. The comb-cells should be all separate, and just like kernels of corn. This will give a chance for the boiling water to melt the wax between them. Have on top of stove a pail or pan containing boiling water, and keep the follower in it, grooved side down. Place in the press a good strong piece of cheese-cloth having the same reach across the bottom and up the sides, and about six inches projecting on all sides. Place a board from top of the boiler to the press, so as to catch the drip, and dip the slumgum into the press till it is within three inches of top; lay cheese-cloth over it so as to protect the follower from coming in contact with the slumgum. Place the follower on top of all, and then the cover with the screw. Screw down till a stream comes from the spout, and keep screwing down *gradually* till all the wax is out. Do not be in a hurry to screw down, but do it slowly. You may ask, "Why not have the press higher or deeper?" But you will readily see that, if it were deeper, bee-keepers would fill it too full, and the slumgum, when pressed as far down as possible, will be still too thick for all the wax to escape. Better not press so much at a time, and be sure all the wax is out. The slumgum, when pressed as much as it can be, should not be over one inch thick, and ¾ would be still better. If bee-keepers could have some sort of press that did not cost too much, one they could afford to buy, the foundation used in the brood-chamber would cost them *nothing*. For example, suppose they had 20 hives in which they wanted to use full sheets of foundation in the frames. Now, to fill 20 hives with light brood will take about 20 lbs. This at, say, 50 cents per pound, is $10.00. Now, after five years' use they have this press, and render the combs into wax. They will get on an average from each hive 2 lbs. of wax. This at 31 cts. per pound, which is the market price now, would bring them 62 cts. per hive, or, for the 20, $12.40. They are ahead $2.40 by using the foundation, besides having the use of nice straight combs in the hives while in use. I have always contended that the use of foundation in the brood-chamber costs the bee-keepers nothing. If I am not right, will some one please tell me where? By the use of a wax-press the wax can be gotten out at any time, and it is worth cash at any time of the year. We consider wax just as good as cash, and would just as soon have wax on hand as cash in bank. It is simply exchanging cash for wax in the first place, and then cash for wax, without a particle of loss to bee-keepers. All that is needed is some kind of cheap simple practical press that any bee-keeper, no matter how small, can afford to purchase.





SALISBURY'S HOME-MADE WAX-PRESS; SECTIONAL VIEW.

Syracuse, N. Y.

[Mr. Salisbury has been working on the problem of getting up a cheap press. As nearly as we can estimate, this could be sold for about $4.00 at retail; and if one were handy with tools he might be able to make one at a cost of material not to exceed $2.00. The press Mr. Salisbury sent us was made entirely of hard wood. Soft wood might be used, perhaps. But there is danger that it might be too porous or spongy, owing to the absorption of steam from the slumgum.

We told our artist to show only two thumbscrews; but recent experiments have convinced us that four will be almost a necessity. Under the influence of the hot steam the cover would be liable to twist diagonally under the strain. With four screws it would probably hold its position.

In order to make a separate wax-press—one that does not use either steam or water—effective, the operator must work rapidly, and even then there will be danger of the slumgum "freezing" or chilling. Just when it begins to be a little cold, the free wax will refuse to run off, of course.

If one were to follow Mr. Salisbury's directions he would probably be able to get very good results. However, I am still of the opinion that a press that allows steam to circulate all around the slumgum during the whole time of squeezing, keeping the wax hot, will yield more wax in the hands of the *average person* than one that takes it hot from the boiler, and depends on pressure being applied before it can cool.

I believe our friend is in error when he states that a metal wax-press of galvanized iron, or black iron, would discolor the wax going through it. We melt from 60 to 80 tons of wax every season, almost all of which is melted over hot black iron steam-pipes. After a series of experiments we can not see that black iron, as we use it, discolors the wax in the least, because the wax *flows over them rapidly*. If the wax is allowed to *stand in an iron kettle for several hours*, especially if it is reheated several times, it will darken. If it is confined in a galvanized receptacle for a continued length of time it would assume a greenish tinge. But old comb that is put into either a galvanized or black-iron wax-press, and melted, should pass through the machine so rapidly that no discoloration will take place—that is, if directions are followed not to let the wax boil or simmer in the inside of the machine. When it is once hot and thoroughly melted, pressure should be applied at once, letting the free wax escape. It will then come out with a beautiful yellow color.—Ed.]

THE NEW FOUL-BROOD CURE.

How to Apply Formaldehyde; Why and How it Cures; a Seasonable and Valuable Article.

BY WILLIAM HAHMAN.

Mr. Root:—I see your remarks on the use of formaldehyde in your Apr. 15th issue. I think I wrote you of my curing combs of infectious foul brood by means of this chemical late last summer, and was somewhat surprised that you did not give this matter the publicity it deserves. Foul brood is a germ disease, just as smallpox probably is; and my reasoning was that, if formaldehyde can thoroughly and completely disinfect premises harboring germs of smallpox, and completely destroy the germs, spores, and all traces of the disease, it might also kill and eradicate foul brood. My tests satisfied me that such treatment does entirely destroy foul brood. The disease did not reappear in combs that were infected and so treated. The chemical is not applied by spraying, as you suppose, but the vapor is driven off by evaporating with a lamp. Various styles of formaldehyde-fumigators are now for sale at drugstores at 25 cents each. Each fumigator contains enough formaldehyde to disinfect a common living-room. The cheaper plan is to buy the formaldehyde (40° solution), put a little of it in a tin dish, and place it over a small coal-oil lamp. I fumigated five or six hive-bodies full of frames at one time in this way, with three or four tablespoonfuls of formaldehyde, putting the lamp and tin dish in a hive-body and empty super, and stacking on top the hives to be fumigated. I lighted the lamp before stacking up; and after all the formaldehyde was evaporated I tilted up the hives enough to blow the lamp out and let the whole outfit stand 12 or 14 hours, shut up tight. After it was all over it took quite a lot of airing to reduce the pungent odor of the gas, and it annoyed the bees to receive one of these frames in the colony; but they managed to dispel the rest of the fumes.

The fact that boiling does not destroy the spores of foul brood does not prove very much. It goes to show that we must use an entirely different method of eradication. Because we can drown a cat, it does not prove that we can destroy other animal life in the same way; for fishes could stand no end of drowning. It does not even prove that fishes are particularly hard to kill, but that we must try some other method. We do know that formaldehyde vapor, or fumes, are particularly destructive to germ life; and I believe that its use will mean a big thing for the bee-keeping fraternity.

Altoona, Pa., April 19.

[Still the evidence is accumulating, going to show that formaldehyde kills even the spores in affected combs. We shall be very glad to hear from others who have any thing to offer. As I have said before, if we can cure foul brood without melting or burning the combs we shall have made one great step toward economy in treatment. If there is any thing that a practical bee-keeper dislikes to do it is to melt up or burn up several hundred of his choice combs. There is no better property in a bee-yard. —Ed.]

[*Later.*—Since the foregoing was received, the following has come to hand, which will explain itself:]

I will add that the cases I treated last year appear to be entirely cured up to this time this spring. I have only one case on hand, which was not treated with formaldehyde. I expect to get rid of this in a few days.

William Hahman.

Altoona, Pa., May 7, 1903.

FORMALDEHYDE APPLIED IN THE FORM OF A GAS AND NOT OF A SPRAY.

In your footnote to my article on page 326 you infer that we spray the combs with formaldehyde. This we formerly did, but we now find it cheaper, quicker, and much more effective to use the gas of formaldehyde by putting the liquid in a tight can with a small tube attached to the top. A rubber tube is adjusted to this tube, and connected with the comb-box. The can is then placed on an oil-stove, and the liquid boiled about twenty minutes. This frees the gas from the liquid, and causes it to pass through the rubber tube into the comb-box, leaving the water in the can, unless it is boiled so long that it is converted into steam, which will do no harm.

The reason for making the gas outside of the comb-box is to avoid burning the combs by the gas taking fire.

Bee-inspector Wright, of the first division of New York, uses a gas-generator in the comb-box; but it is made something like the miners' safety-lamp, and uses formalin pastils. The necessary apparatus can be had through Schering & Glatz, 58 Maiden Lane, New York. If any brood hatches from any diseased combs after being treated it shows that not enough formalin was used, or else the comb-box allowed the gas to escape too rapidly, and should be more thoroughly treated a second time. Allow the combs to remain in the box three or four hours after treating. While all the brood of diseased colonies is killed in the treatment, we have a system of management that sacrifices but little brood, and also cures the diseased bees, and puts them in proper condition to secure a crop of honey.

Charles Stewart.

Sammonsville, N. Y.

[Yes, I inferred that you used the spray. In our last issue a correction was made, to the effect that the gas and not the spray was applied to the diseased combs. Our hopes are raised very high, and we trust the inspectors of New York will give this treatment a thorough and extensive test.—Ed.]

Heads of Grain
from different fields

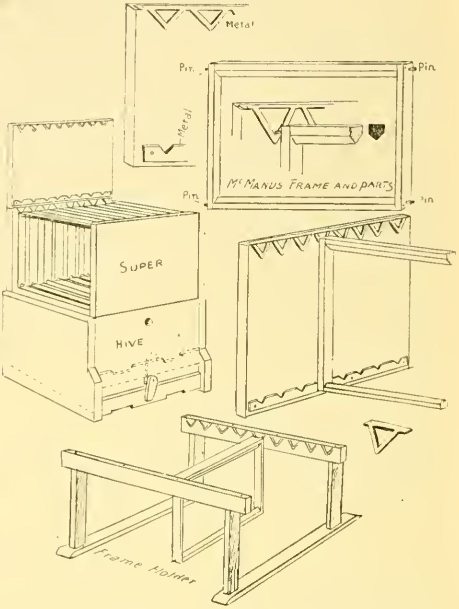
A HIVE-SPACING RABBET FOR FRAMES; WHY SUCH AN ARRANGEMENT IS NOT PRACTICAL FOR GENERAL USE.

I send you some photos showing my bee-hive I have worked on for 12 or 14 years. You must know in the start that I never read a bee journal in my life until last fall. I sent to you for a catalog, and you sent me Gleanings with it, and that was the first bee-paper I ever owned. I knew nothing of the bee-world outside of what few bees I owned, and a few stands among my neighbors.

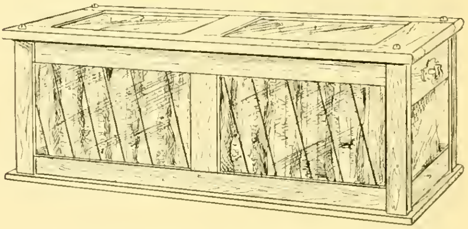
I have worked all kinds of hives, and found none that suited me. I had so much trouble removing the frames it disgusted me, and that started me to devise something better, so you can see what I accomplished.

The drawing shows the hive-body and the method of supporting the frames. There is a pin in each corner of the frame; and when you place the frames in the hive the pins in the corners of the frame that goes in the hive first passes between the V-shaped metal bar at the top. After the pins are below the V, you can run it from one side to the other; and when it drops into its place the pin hits the V in the metal bar at the bottom, and the pins at the top of the frame strike the V in the top.

For the purpose of handling, the frames are put in what I call the handy comb-holder, shown at the bottom of the drawing. When going through a hive I lift the frames out and place them in the holder, where they are spaced two inches apart, so as not to touch. I never hurt any bees, and they are all together, and in as nice shape as in the hive. The pins in the corner of the frames keep the frames from striking against the sides of the hive and killing the bees.



You can see by this device that the frame can be reversed, either side up; right side up, they are self-spacing, self-bracing, simple, durable, and can not be shaken out of place, and the bees can not glue them; but they can be lifted with the finger.



The next drawing shows the case for the honey. When the frames are filled they are lifted out of the hive and set in the case; close the lid, and it is complete. The frames hold from 6 to 6½ lbs. of honey after they are finished. When they are in the case I can set it on either side, top or bottom, and they stay in place.

Rushville, Ind. T. McManus.

[I have illustrated the hive here shown, not because I consider it a practical arrangement for general use, but because the principle underlying it is "invented" every once in a while. In our back volumes we have several different illustrations showing this principle. But I have yet to know of a case where it has been used very extensively by any bee-keeper who produces *tons* of honey. In saying this I do not wish to disparage the work of friend M., for he himself acknowledges he has not been very much in touch with modern methods now in vogue. The hive and frame with which he was disgusted were probably not the modern hives now in use with their self-spacing frames. It may be appropriate, as this thing is coming up every once in a while, to state some of the serious objections to this arrangement.

A frame-spacing rabbet in the hive does not permit of the movement of the frames from one side of the hive to the other without taking them out one by one. In order to shift the position of the frames *en masse*, every one of the frames must be lifted from its position, then be set out, and put in a holder such as is shown in the bottom of the engraving. Then they can be put in the desired position one by one. In spreading brood, for example, one might take out one or two frames in the center, and desire to shift them to the outside, closing up the space from which the frames have been taken. With the arrangement here shown he would have to manipulate at least half the frames, *one by one*. Where the spacing arrangement is on the frame itself he would practically have to handle only the two frames, and those in a pair. After the space is made in the center of the brood-nest, the remaining frames could be shoved over *en masse* without removing a frame, closing up the gap made. The frames taken out could then be put in the new gap made by closing up the other. Then the arrangement of adjusting these individual frames to place consumes considerable time. The lower nail-head must be slipped in between the V-shaped holes in the upper rabbet—an operation that requires some precision of movement.

Still another serious objection is that frames of this type can not be handled in groups of two, three, and four. Modern apiculture demands that the brood-nest shall be manipulated in halves or quarters to a great extent. Any system that requires the separate manipulation of each frame must be considered a failure.

The general arrangement of the self-spacing rabbet or notched rabbet, at first sight looks very pretty in theory; and it is pretty in practice with a few hives, providing one has never had experience with a better arrangement. It is my opinion that friend McManus had better abandon the arrangement before it costs him too much money, in the time wasted in handling such a hive. At a rough guess I should say that any of the staple-spaced frames—the Hoffman or any of the standard closed-end frames—could be handled in a half or a quarter of the time that would be required by the frame shown in the illustration.—Ed.]

NEW OR OLD COMB FOR BEES.

On p. 131 Dr. Miller says he would like to hear of "just one case" where the bees passed over old comb in good condition, leaving cells in it entirely empty, to occupy new comb or foundation. I think I can supply him with that one case. Mar. 31st I got a large swarm which I put into a hive containing four full sheets of foundation, three old worker combs, and one frame with a starter. The frame with the starter was on the outside — I don't mean outside of the hive. Next came a sheet of foundation, then one of comb; then another sheet of foundation, and so on. On examining the colony later I found that the bees had drawn out the foundation, and the queen had filled it with eggs, skipping the old comb, not putting even one egg in it. Of course, I do not mean to say that the old combs were quite empty, because they had a good lot of pollen and honey in them; but, as I understand it, what Dr. Miller and yourself wanted to find out was this: Which does the *queen* prefer — old or new comb? Reginald C. Holle.

Alma, Brownstown, Jamaica, April 13.

[Although you do not make the direct statement, yet you imply that the bees and the queen in this case left the old comb and took up with the new comb and foundation. Dr. Miller will please take notice.—Ed.]

PARROTS IN THE APIARY, TO ANNOUNCE SWARMING.

In reply to an article written for Gleanings some time ago, about having dogs to watch for swarms, I will tell you of parrots for that purpose. Being a parrot-dealer myself I had a few birds left over from last season's trade. One of them I took a fancy for, or it took a fancy for me, I don't know which; but when I came home the parrot would call out, in Spanish, "There comes the boy," as the men who were working for me would say when I was coming home. You see that is how I got the idea. "Well," said I to myself, "if the parrot knows me, and calls out that I am coming, that is a warning for the men." Then I wondered if it would give me the same warning when the bees swarm. I tried it, putting the parrot's perch near the bees, and left it there for about six weeks. When swarming began I hired a small boy to watch for swarms, as the bees generally swarm when I am at dinner or lunch. The boy would call out, "*Las abejas!*" (the bees) over and over, till I could get there and see to the bees myself.

Well, this went on for another month and a half, more or less every day, and sometimes three or four times a day. At the end of the six weeks I told the boy that he need not come any more, as swarming was over. So I paid him, and he did not come again. Then I said to myself, "What bad luck I had!" What I did not care for the parrot to learn (as it was to give warning to the men) it did learn, but not to give me warning about the bees. Four days after I told the boy not to return I heard a voice calling, "*Las abejas!*" only it sounded like a woman's voice. I ran to see what it was, and, sure enough, it was a swarm, and the parrot was calling for all it was worth. You see I did not till then know that the parrot knew any thing, as the boy never told me a word about the bird, as he knew that would mean he would lose his job.

Two things are greatly in favor of the parrot: 1. It costs only a trifle to buy one, compared with a dog; 2. It does not cost a cent to feed one, as it eats every thing human beings can, except grease or meat of any kind. That is a saving alone of at least ten or twelve cents a day — what the dog would cost. Again, it can tell by talking and giving the exact call, not like a dog that barks, fooling you many times by barking at nothing, or at a cat or person. Besides, the bird is green, with a rich yellow head, and looks like a flower, and therefore it can be among the bees and yet not get stung like a dog, and it does not need a house with a glass front, as does a dog. Finally, the bird is a great pet, and makes a bee-keeper's wife more than happy. Emilio Astie.

Tlalpam, Mexico, April 16.

[Parrots are rather expensive in this part of the country. I have known that some of their sayings dovetailed in with actual occurrences. I used to think they simply imitated; but from some observations I have made, it appears that one bird at least will get off remarks that are quite appropriate for the occasion. Like every other good thing, I suppose there are parrots and parrots. While some might be bright enough, when a swarm was out, to give the alarm, others would be practically worthless.—Ed.]

CAN A PERSON BE SERIOUSLY POISONED BY THE FUMES FROM A STRONG COLONY OF BEES?

March 17th was a fine warm day, and I opened the brood-chamber to look through the combs, trim off the burrs, etc. After working with the combs about 20 minutes or more I began to get sick at the stomach, and to feel swelled up about my face and body. I felt as a person does when one of his limbs goes to sleep; and I was so desperately sick I had to leave the bees and frames, some of them out of the hive. My wife bathed me and fanned me, and I manipulated my face and body as best I could to keep up circulation. I thought it was on account of stooping over too long, causing the blood to rush to my head. After I got so I could place the frames back I did so, and left them alone that day. The next day I felt as though I was over my trouble, and opened the hive and finished it, or all but the last frame, and felt the same trouble coming on me. As soon as I felt it I quit at once, but that didn't help it any. It came on anyway. I wasn't stung any at this time either. I got deathly sick, and lost control of myself. My circulation stopped. I turned red, green, and white, my finger-nails blue. I had the doctor called as quickly as my wife could get him. He was badly alarmed about my condition, and said I had a close call. I got stung some at the last while putting the frames in that I had out. After I got so sick, those stings all festered up the next day, full of matter and water. The stand is a very strong colony of Italians, and I think gentle. I had my veil on, and gloves. The hive was full of brood, and doing finely.

I have searched the A B C of Bee Culture through, looking up this matter. I can not find any thing about bees making people sick at all, as in my case. I have read the matter on bee-stings. It doesn't refer to my case.

I should like to know the cause of this trouble. I am told that some people can not work with bees at all; that the fumes from the hive do not agree with them, or their system. I thought it may have been on account of my system being somewhat out of order at the time; but I will not bother the hive until I know more about the matter.

Huntsville, Ala. C. R. Hamilton.

[A year or so ago we had one other report just like this, of a case where a lady was poisoned by merely inhaling the fumes as they arose from an ordinary colony of bees. So poisonous were these fumes she was obliged, much against her will, to give up bees entirely. Years ago father Langstroth described a similar sensation. It is reasonable to assume that in rare instances some persons are affected merely by the fumes arising from the brood nest. In cool weather bees, as soon as the hive is opened, are apt to elevate their stings, and a careful inspection will show a tiny drop of poison. At such times one may detect, if his nose is close enough, a pungent odor. You say the day was warm; but it was cold enough, judging from the date of your letter, to make the bees show poison-drops. All those who who are thus sensitive to such fumes will probably have to give up bee-keeping entirely.—Ed.]

S. L. WATKINS AGAIN; HONEY PROSPECTS IN CALIFORNIA.

Mr. S. L. Watkins has been repeatedly advertised by our State horticultural papers. A number of years ago he did a large business in honey-plants, and also published a paper on horticultural subjects. In our earlier dealings he gave satisfaction; but in our later orders we have received no satisfaction at all. He has run himself out of the plant business.

The honey prospect is most excellent. We have had an April rain of 1½ inches. Black sage is in full bloom in the coast region. White sage will commence blooming in about a week. G. M. Hawley,

Pres. of San Diego Honey Producers' Ass'n.

El Cajon, Cal.

[The Jenny Atchley Co., of Beeville, Tex., sent queens to Mr. Watkins in exchange for oranges. The bill of lading, says Mr.

Atchley, came, but no oranges, and the railroad company can not find any record of any shipment. It is evident that Mr. Watkins needs a little more "free advertising," and we are quite willing that he should have it.—Ed.]

A BOTTOM-BOARD BEE-FEEDER THAT DOES AWAY WITH OPENING THE HIVE FOR POURING IN FEED, AND PREVENTS ROBBING.

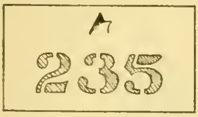
I have been using a feeder for some time which I consider ahead of any other I have seen, and is to be used with the Dovetailed hive and Danz. bottom-board, deep side up. It is a tin pan 16 inches long, 11 inches wide, and from ½ to ¾ inch deep. It is better to have a wooden rack or frame in the pan for the bees to crawl on while feeding.

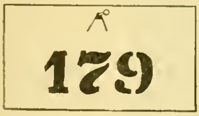
Having the feeder ready, go to the rear of the hive that needs feeding, and pry the body off the bottom-board, and drive up the bees with smoke. Then tilt the hive forward; and if there is any burr-comb on the bottom of the frames, remove it. Place the feeder under the hive in the rear end of the bottom-board and slide the hive forward so as to leave a space for pouring in the syrup. This space is afterward covered with a stick.

The bottom-board should be nearly level when feeding. When the pan is placed in the hive it can be left any length of time. It is excellent for fall feeding.

Kegg, Pa. George McVicker.

A METHOD OF HANGING HIVE-NUMBER TAGS.





I inclose a drawing of a hive-number that I have used for some time, and consider a good thing. Take pieces of tin 2×3, or any convenient size, place them on the end of a block of hard wood, and with a thin ¾-inch chisel make two cuts in the form of a letter A. Next bend down the central tongue and cut off a little of the point so that, when it is bent back, it will leave just room for a small nail and still not allow the head to slip through. This is a handy device for those who desire to change hive-numbers quickly in the hurry of the swarming season. James Roat.

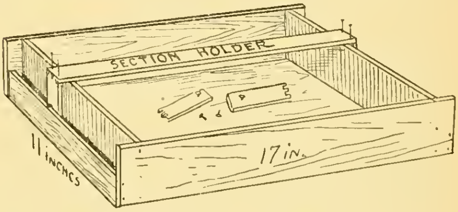
Canandaigua, N. Y.

[When I first read this over I wondered why friend Roat did not use a *round* punch in cutting the hole through the number-tag. Then it occurred to me that a V-shaped hole with the tongue of the A sticking upward could be made with any cold-chisel; and when the hole is made the tag will hang to the nail better; i. e., the angular hole will not permit the tag being blown off as readily.

The scheme of using number-tags is getting to be quite common; and numbers in connection with the card index or a book give one a very nice and satisfactory history of a queen or colony. In the rearing of high-class queens it is *the* way to get at the pedigree. Records on slates are apt to become illegible; and, what is worse, sometimes some child may innocently displace or run away with the slates.—Ed.]

A HANDY DEVICE FOR NAILING UP SECTION-HOLDERS.

I send you herewith a description and drawing of an arrangement which I find very handy in putting together Danz. section-holders. It is made in the shape of a box 17 inches long. It can be any width; but if made 11 inches wide it will just hold 8 section-holders at once. The end-pieces are a little less than 5 inches high, and are set in a full half-inch from each end. On the bottom, at the ends, are nailed pieces about 1½ or 2 inches wide. But these should not come up far enough for the hanger-pins to rest on them. This makes a little space ½ inch wide to hold the end-pieces of the section-holders, top ends down, dovetailed ends up, and hanger-pins out. To use I put 8 end-pieces in each end of the box. Then lay on the bottom-bars, and drive them to their places, and nail. The hanger-pins should be put into the end-pieces before putting together; but before driving them in I take a good sharp ½-inch bit and counter-sink the holes a trifle so that the heads of the pins will drive in entirely out of the way, so as not to interfere with the sections.



Having the form in the shape of a box makes it very convenient for holding the end-pieces. I throw them into it as fast as I drive the pins into them, and then they are right handy for setting up into the ends of the form for making up. It will hold all the end-pieces which come in a package of five supers. E. S. Webster.

Hutchinson, Kan.

[Your plan of nailing up section-holders is very good. It would apply equally well to any section-holder used in the various styles of hives put out by any of the manufacturers. Of course, the dimensions would have to be changed to fit.—Ed.]

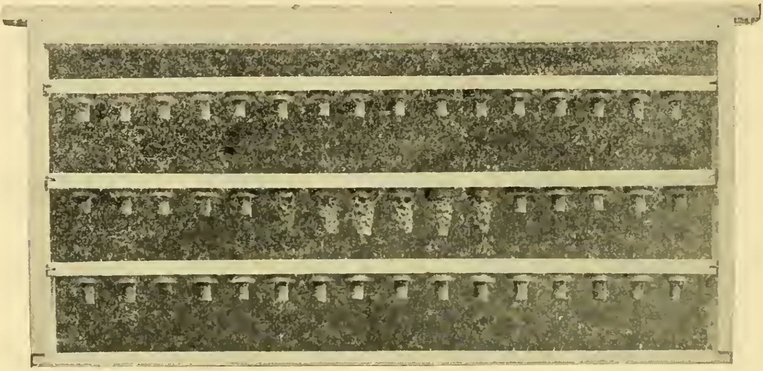
There is not going to be a very big crop of honey. The season is too cold and wet; bees are in bad shape, and are very weak.

W. J. Pickard.

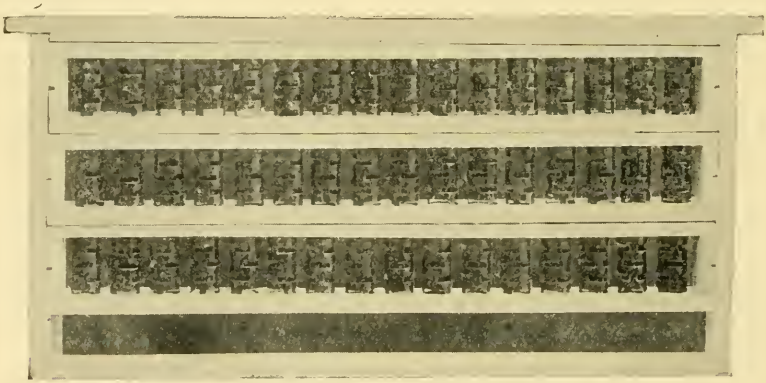
Richland Center, Wis.

QUEEN INCUBATOR AND BROODER; AN ARRANGEMENT THAT ALLOWS THE BEES ACCESS TO THE CELLS AND QUEENS AT ALL TIMES.

One of the greatest objections urged against a lamp-nursery, or any kind of nursery where queens are hatched away from the bees, is that the cells and their inmates are robbed of the actual care of the bees. When the bees have access to a cell, and the time approaches for the queen to emerge, the wax over the point is pared down; and as the queen cuts an opening through the cell, and thrusts out her tongue, she is fed and cheered in her efforts to leave the cell. A queen hatched away from the bees loses all of this food, cheer, and comradeship; and, until introduced to a nucleus or full colony, has not the natural food that she would secure were she among the bees.



STANLEY QUEEN INCUBATOR AND BROODER; CELL-CUPS AND FINISHED CELLS.



CAGES OF QUEEN-EXCLUDING METAL.

All of these objections are overcome by an invention of Mr. Arthur Stanley, of Dixon, Illinois. Mr. Stanley makes the cell-cups according to the directions given in Mr. Doolittle's Scientific Queen-rearing, sticking the base of each cell to a No. 12 gun-wad.

By the use of melted wax, these wads, with the cells attached, are stuck, at proper intervals, to a strip of wood exactly the length of the inside width of a Langstroth brood-frame. Two wire staples driven into the inside of each end-bar slide into slots cut in the ends of the cell-bars, and hold them in position.

The process of transferring larvæ to the cells, getting the cells built, etc., have all been described in the books and journals, and need not be repeated here. When the cells are sealed they may be picked off the bar (still attached to the gun-wads); and right here is where the special features of the Stanley process steps in. Each cell, as it is removed, is slipped into a little cylindrical cage, made of queen-excluding zinc, the cage being about two inches long, and of such a diameter that the gun-wad fits snugly, thus holding the cell in place and stopping up that end of the cage. The other end of the cage is plugged up with a gun-wad. Long rows of these cages, filled with sealed cells, are placed between two wooden strips that fit in between the end-bars of a Langstroth frame, and are held in position by wire staples that fit into slots cut in the ends of the strips. To hold the cages in their places, holes a trifle larger than the diameter of the cage are bored, at proper intervals, through the upper strip, thus allowing the cages to be slipped down through the upper bar, until their lower ends rest in corresponding holes bored part way through the bar.

A frame full of these cages, stocked with cells, may be hung in a queenless colony. and will require no attention whatever, except to remove the queens as they are needed. The workers can freely pass into and through the cages, cluster upon the cells, care for them, and feed the queens after they hatch, exactly as well as though the queens were uncaged.

These cages are unsurpassed as introducing-cages, either for fertile or for virgin queens. The bees are not inclined to attack a queen in a cage to which they can enter, yet they can surround, caress, and feed her. They can become acquainted with her, and give her the same scent as themselves. When desirable to release her, one end of the cage can be stopped with candy, and the bees allowed to liberate her by eating it out.

By putting food in one end of the cage, a queen may be kept caged, away from the bees, the same as in any other cage.

Flint, Mich. W. Z. Hutchinson.

From the Bee-keepers' Review, Jan. 1.

A FOUL-BROOD SCARE; A PECULIAR ODOR RESEMBLING THAT FROM AN OLD GLUE-POT IS NOT ALWAYS AN INDICATION OF FOUL BROOD.

There has been so much written about foul brood that I have concluded to give an experience I once had.

My 16 hives of bees were set up on brick piers as is the custom in this locality. I had a lawn-mower to keep the paths clean; but as the bees were cross when I went too close to the front of the hives the grass was left to grow there.

In August one year there was a very offensive smell all over the yard, and it seemed to be worse when I opened the hives. I studied the A B C book, and decided that it was foul brood. The hives were all full of brood, and it looked flat, sunken, and shrunken, more than I had ever seen it before, and the cappings were full of little holes. It looked like a terrible undertaking to follow the directions given in the A B C for the cure of foul brood; but something had to be done, for the smell, instead of going away, grew worse until it was a regular "glue-pot" smell. So I began, and in two days' time had treated all the hives thoroughly. The next morning I thought I would look at those bees again, for the smell was there just as strong and offensive as ever. I looked into all those hives, and every one of them had begun to make nice combs, and the queens had begun to lay. I then began hunting to find out what could cause the odor. I first thought it might be a dead chicken; but it did not smell like that. I looked under the house and everywhere, but found nothing. Finally I looked in the thick bushy grass, just under the hive's entrance, and there I found dead bees an inch or so thick all over the ground, and that was what smelled so. After that, in spite of the bees' crossness, I cut all the grass away with a sickle, and put wood ashes in front of every hive, and I never had any more foul brood.

Now, it may be possible that other people make mistakes about this business, the same as I did. If this should be a help to any one I shall be very glad.

Mrs. C. A. Stebbins.

Broad Creek, Va.

[I have read carefully what you have to say, and I am not so sure that you did not have foul brood. The character of the cappings would indicate that you had something very much like it, or perhaps equally bad—black brood; and the treatment you gave was just the one that should have been given, and you gave it none too soon. I am well aware that dead bees do very often smell like rotten foul brood; but I should conclude it was only an incident that they happened to be there. Foul brood must be pretty bad indeed to be detected by its odor within the immediate vicinity of the infected hive.

There is one symptom that you failed to give, and a very important one. If that were present you might rest assured you had foul brood without doubt. That symptom is ropiness. If you found the dead matter, when you stuck a sprig of grass or a toothpick in it, would draw out like glue or molasses, you might be sure it was foul brood, for there could be no question about it then. In the presence of the other symptoms you have named, if the dead matter did not rope, then you may have had black brood. In either case, you should have administered the treatment you did. Even if you had only pickled brood you would be on the safe side.—Ed.]

NORTHERN MICHIGAN AS A HONEY LOCALITY, ETC.

Would it pay to go to Northern Michigan to better my location? What county would be best to get the willow-herb in? Do you think the difference in the season would cut any figure? Wm. Ort.

Pawpaw, Van Buren Co., Mich.

[Friend O., your first question is hard to answer, as I do not know what your present locality is for honey. At the recent convention at Bellaire, Antrim Co., it was stated that the largest crops were secured in that part of Michigan. Willow-herb is found all over those northern counties, and so I can not say which is best. A large part of Leelanaw Co. is now, however, cultivated and cleared for growing potatoes; and there is not as much wild land (where willow-herb is found) as in some of the other counties. One of the speakers at the convention thought raspberry was of more value than willow-herb. He said the timber had been cut off so as to leave about 80 acres close by his apiary that was almost covered with wild red raspberry; and as the period of blooming and ripening is much longer than further south, he said it yielded honey more or less for six or eight weeks. The seasons are shorter in Northern Michigan than where you are, unless it is close by the lakes or other bodies of water. This tends to make the falls *later* than in the interior of the State. Our own apiary of two hives secured, last season, honey from early in the spring until up into October, and I do not think there was a single day when honey would have been disturbed if left on the tops of the hives. Of course, I did not get a very large yield, for I did not give them very much attention. That thousand bushels of potatoes kept me too busy, and I was not trying to see what could be done with the bees. I would advise you or any one else who contemplates making a change of locality to take a trip first and visit the bee-keepers in the vicinity where they had thought of moving.—A. I. R.]

WHY HOLTERMANN'S FERTILIZING-TENT DID NOT WORK.

I have read with interest Mr. Holtermann's article (p. 94) concerning the fertilizing-tent that he erected last season; also your and Dr. Miller's comments on the same, in different issues of Gleanings since.

Somehow it seems that both you and Dr. Miller have failed to suggest a remedy for Mr. Holtermann's trouble, or guess the cause of his failure. In the first place, I will say that Mr. Holtermann expected his queens to do a very unnatural thing—that of taking their wedding-flight from an entrance that was entirely unused by the worker bees of her nucleus.

Instinct seems to teach the queen that the future welfare of the colony depends wholly on her making this trip in safety, and in rare instances will she depart from her hive through any but the entrance that is used freely by the other bees (workers and drones) of her colony. This is why, I think, in Mr. Holtermann's case, the queens put forth all their efforts in trying to pass the guarded entrance, and not because they were attracted there by the noise of the bees in the apiary, as *he* rather intimated. If you will turn to Mr. Holtermann's article you will find that he used a separate hive for his queens and drones.

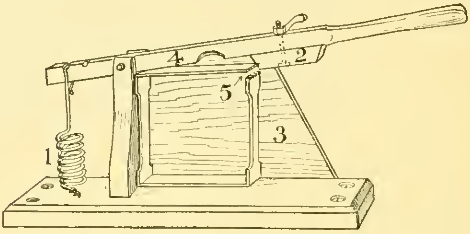
This I would not do. Arrange it so that each nucleus will have quite a quantity of drones. By allowing the drones to fly from the nucleus at the time of day the queen is expected to take her flight, the entrance that led to the inclosure will be used almost as freely by the drones as is the guarded entrance used by the workers. Therefore the queen will have no choice of entrance. If I could not arrange to have drones reared in the nucleus I would supply the necessary number by trapping them from my choice drone-rearing stock, giving them to the nucleus a few days before the virgin queen was expected to come forth, and allow them to fly, for a short time each day, through the entrance that led into the tent.

Almond Weaver.

Nicklow, W. Va., Mar. 6.

A HANDY SECTION-PRESS.

I am using a section-press like the one here shown. I have used it for about ten years for thousands of sections. It works to perfection. It can be used more rapidly than any other press I have seen. No. 4 is a lever by which the section is compressed; 2 is a movable wedge, this to be moved only at slight variation of sections; 5 is the dovetailed end of section; 3 is a board at the back to which the section is held with the left hand while being compressed. Fig. 1 is a spring by which the lever is always held open.



Do you think there would be a demand for the machines? And could it be patented?

Anton G. Anderson.

Council Bluffs, Iowa.

[The principle of this press, while very good, is quite old. We illustrated one very much like it in 1879. Its general design is simple, and any mechanic can make one.—Ed.]

SMOKER FUEL; ASHES AROUND HIVE-ENTRANCES.

What is the matter with cotton rags to burn in smokers? I find coal ashes make an excellent stand for bees. Raise the hive about 6 inches; make a nice door-yard in front with the ashes well packed clear up to the entrance. It's the best thing I find to keep away black ants.

Rev. J. W. Wilson.

E. Springfield, Pa.

[Cotton rags are excellent, but too expensive. Rotten wood, punk, peat, planer-shavings, sawdust, dry leaves, or any combustible material, cheap and slow-burning, may be used. As a rule we prefer to have excelsior or planer-shavings. Get a barrel or two, and keep them in a dry place, and you will have fuel enough to last a whole season, even if you have a large apiary.

Coal ashes make an excellent bedding for entrances. They keep down the grass, pack well, but I did not suppose they would also keep off the ants. In a large yard the cheapest and easiest thing to put up is a rough ⅞ board about 8 by 10 inches. Run it up against the entrance, or attach it to the hive. When the lawn-mower is run through the apiary, lift the board up, cut the grass down, and replace the board. The trouble with coal ashes is that weeds and grass will in time push up through them.—Ed.]

GLEANINGS, FROM COVER TO COVER, ALL GOOD; SMALL SECTIONS FOR SOUVENIRS.

You request the readers of Gleanings to state which department is most appreciated. Well, now, I shall be obliged to decide that "I don't know," just as does Dr. Miller when he doesn't know. When I get Gleanings the first thing I do is to run my finger down inside the wrapper, and "off she goes;" glance at markets, advertisements, and settle down to business on "Stray Straws." I'm always sorry when they are finished; and so I continue clear through to the other cover, always feeling sorry that each department isn't longer. I could get my dollar's worth from any one department, without the other departments at all, though that would be like a hungry man at a banquet with only one short course, with an appetite and digestive capacity for a full meal.

It seems some people read Gleanings as some people eat a meal—"eat the best first, and so have the best all the way through the meal." Well, that's all right; but I should be afraid of skipping a "course" somewhere which would contain a good deal of the digestive elements to go with the rest, just as was that last "course" called "Toast" at the bee-keepers' banquet at Denver last fall. That reminds me of the honey served there that evening. Can you tell me from what plant it was produced? at what price you could furnish the sections (those souvenir sections)? I think of producing sufficient honey in similar sections for a *treat* at our farmers' institute next winter.

I hand you a program of a session held last month at our town. You will notice on the third day's dinner I put up the honey, and they relieved me of 93 lbs. (comb).

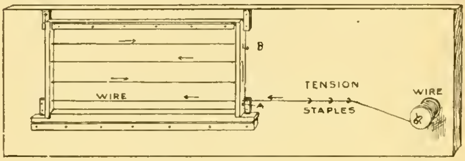
Hull, Ia. F. W. Hall.

[These very small sections could not be made for less money than the regular standard goods. While the material will be very much less, the labor of adjusting machinery adapted for the larger sizes would be enough to offset the difference in cost of material.

Perhaps you are as eager to get information on the subject of bees as I am to get hints on handling automobiles. I read my two journals, devoted to that subject, from cover to cover—even all the advertisements. But the first thing I dive after is the department of questions and answers. If I ever get to be a veteran in the horseless business I suppose I shall be able to pick out articles here and there that will cover departments of knowledge entirely new to me. The small-section honey to which you refer was produced in Colorado; when or by whom I don't know.—Ed.]

CARR'S METHOD OF WIRING.

After reading "a simple method of wiring frames," on page 247, I made a similar wiring-board; but instead of using two nails under the top-bar I use a ⅞-inch strip the full length of the top-bar, nailed to the board; also nail a thin strip like a bottom-bar to the board for the narrow ends of the end-bars to rest upon, and one at each end of the frame to prevent end play.



Instead of five nails for the tension I use three staples; also two staples inside of the top-bar, driven into the board. I like the end-spaced frames, and it seems strange that any one would do without them after giving them a trial. I first used them in 1897, and have since added them to all of my old frames. I also use two of the staples in each hive-body to make a bee-space between the wall of the hive and the first frame.

The plain division-board, as now made by the Root Co., is as near perfection, it seems to me, as can be. I use one in each hive-body on the side opposite the two staples mentioned, and always work from that side of the hive. H. M. Carr.

Cranfills Gap, Texas.

HOW TO PLACE HIVES IN THE CELLAR IN SUCH A WAY THAT THE DEAD BEES ON A NAILED BOTTOM-BOARD WILL BE NO HINDRANCE.

On page 948 F. B. Cavanaugh asks about putting bees in a cellar with tightly nailed bottom-boards. The answer says that if that is done you should clean out dead bees occasionally with a crooked wire. Now, it happened that I got hold of many Langstroth-Simplicity with tightly nailed boards in trying to winter in different positions. I finally got to putting the front end three or four inches higher than the back end, with the front toward the wall, and it was all right. Bees dying in the hive during winter work toward the rear end of the hive, and all goes well so far for winter. I have put in between 300 and 400 in over 20 different cellars, always the front end at least two inches higher, and I would not give 5 cts. per colony to have them insured to be all right in spring if the cellar will winter potatoes without freezing or sprouting too much. I have had cellars with two feet of water in a part of the winter, and never less than four inches; and seldom is a cellar so I can not make a mud ball from the bottom. Get the temperature right for potatoes; arrange your hives in a perfectly dark corner, as stated above, and go to California and spend the winter, and your bees will be all right next spring.

Meckling, S. Dak. THOS. CHANTRY.

CHEAP AND EFFECTIVE ADVERTISING; THE VALUE OF RUBBER STAMPS.

While looking over GLEANINGS I notice on page 321 an article from J. M. Young in regard to using a stamp on every thing he sends out. I wish to say that I have been using this method for marking my honey-boxes, also my shipping-cases. I put my name on each and every section taken from the hives that are suitable to put on the market. I also put a label on each one of my shipping-cases besides the stamp, and I find that, by so doing, I have been able to build up a pretty good trade; and wherever any of my honey has been sent they always want more of it. I put it up as nice as I can, and find that I make no mistake by so doing. I get from 12½ to 15 cts. per section for it. C. H. PETTENGELL.

Long Island, Kan.

A UNIQUE PLAN FOR GETTING RID OF ANTS AROUND A HIVE.

I saw in GLEANINGS, a short time ago, where a party asked how to get rid of ants. My way is sure death. I take a medium wide smooth board; nail a cleat on one side at each end, then take honey or molasses and stir in Paris green or any poison; then put some in the center of the board at the side of the cleats; then turn this side down near the hive. The ants will get their fill and die. The bees can not or will not go under to get poison. This works well with me. S. D. BUELL.

Union City, Mich.

[Your plan is excellent if the bees will let the poisoned sweet alone. I should suppose that they would help themselves to the same dose, especially during a honey-dearth.—ED.]

DRIVING AWAY ANTS WITH CUCUMBER PEELINGS.

One of Miller's last Straws is one advocating the use of camphor to drive away ants. Now, you may smile when I mention an old Scotch remedy, and an effective one, too, in the use of cucumber peelings or rinds. The lasting qualities are better than camphor, and much cheaper; and I don't see any thing in the substance that would hurt bees. Try it and note the result. R. V. MURRAY.

Cleveland, Ohio.

MOTH-BALLS FOR COCKROACHES.

May 31st, 1902, W. W. Cozart, of North Carolina, asks for a way to exterminate roaches. If he is troubled with them as I have been he will use moth-balls, and place them where the vermin huddle, which is on top of the hive or under — on top when a false cover is on. Said balls cost 10 or 12 cts. per lb. I find here at the South that roaches are very destructive to bees, as they will eat very many. J. H. ALLEN.

Box Elder, Va., April 18.

STORING EMPTY COMBS.

I expect to have quite a large number of empty combs on hand this summer. Will you please advise in GLEANINGS of a good way of keeping them other than placing in hives over or under bees?

Ben Avon. Pa. BEN AVON.

[Combs taken out of hives in the fall may be stored in moth-proof and bee-proof boxes, or stacked up in empty hives, also moth-proof. But if the combs have been exposed in the mean time, away from bees where the moth could possibly get at them, then it would be necessary to fumigate them before putting them in closed boxes.—ED.]

SUBSTITUTING ALSIKE FOR RED CLOVER.

Would it pay to go to the expense of sowing alsike clover if you had an unlimited pasturage of red clover? G. W. BRAMEL.

Millersburg, Ky.

[If you can get the farmers in your locality to substitute alsike for red clover as a matter of experiment on their part, you furnishing the seed free, I would advise you to get them to do so if you can. Whether you do or do not, it would be well to try alsike in a field of your own. Alsike would yield honey a week or so before red clover, and would prolong your honey crop just that much.—ED.]

A GOOD LOCAL CONVENTION.

We had a very successful convention of bee-keepers at Moberly on the 22d and 23d inst. Several parts of the State were represented by prominent men, and we effected a permanent organization, and listened to quite a number of splendid bee talks. We fixed the initiation fee at 60 cts. for new members who may desire to join between now and our next meeting, after which it will be $1.00 We now have 67 names on the roll. We expect to meet again some time in December. W. T. CARY, SEC.

Wakenda, Mo., Apr. 25.

SULPHUR FOR BEE-PARALYSIS.

I tried the sulphur cure for bee-palsy. It cured the disease in a few days, but killed all the open brood in the hive.

E. D. HOWELL.

New Hampton, N. Y., April 20.

OUR HOMES,

BY A. I. ROOT.

Let us not be weary in well doing; for in due season we shall reap if we faint not.—GAL. 6:9.

I have told you the circumstances of friend Martin's death; but I have not said much in regard to some things that transpired *after* his death; and, indeed, many of the friends concerned will feel like objecting to some things I am going to mention; but as there are several moral lessons involved, I wish to beg their indulgence just a litttle.

Mr. Martin, when he recognized that death was near, made a request that his body be sent to his old home in Hartford, N. Y., for burial. It is not at all probable that he knew how expensive such a proceeding was going to be; and, in fact, nobody seemed aware it would cost $400 or $500. There are some customs and regulations in Cuba that we Americans do not understand very well. I shall not attempt to go into the particulars, more than to say that the embalming process in Cuba is very expensive. Then there are certain rites and time-honored customs, that I believe belong to the Roman church, that are not yet overruled or set aside.

After Rambler's death, none of the American bee-keepers felt like taking the responsibility of advancing the money to have his request carried out; and, in fact, our good friend Mr. de Beche was perhaps the only friend and acquaintance of Mr. Martin who knew enough of the Spanish laws and customs to be *able* to do this; and when he made inquiries he was informed that, unless he commenced proceedings at once, it would be an impossibility to get Mr. Martin's remains until they had been in the Roman Catholic cemetery two years. At the expiration of two years the remains could be taken up and carried away at an expense of only about $20. After Mr. Martin's death some sort of paper was found—I do not know exactly whether it was a will or not—but this paper mentioned that he had a $1000 life-insurance policy, and he directed that enough of this be used to pay the expense of sending his body to his old home; and the remainder was to be used in purchasing an appropriate tombstone. After seeing this paper, Mr. de Beche decided to advance the money from his own pocket, especially as the authorities would not grant him any time to confer with Mr. Martin's relatives nor even with the bee-keepers on the island. I was, as I have told you, 60 miles away at Paso Real. Mr. de Beche wrote me what he had decided to do; but as I expected to see him in a few days, I am afraid I did not take the trouble to write him that I approved of his undertaking, and would see that he did not lose by coming forward at such a time in such a generous way. I *felt* this; but, as I say, I neglected to give him a word of encouragement. I do not know what the American bee-keepers, the friends of Rambler, did. My impression is we all just let Mr. de Beche go ahead.

Some little time after the body was sent away I received a letter saying the writer held the life-insurance policy alluded to in his will, and asked me to assist in recovering the money. Immediately after Mr. Martin's death, Mr. de Beche visited the American consul, and gave him the circumstances of Mr. Martin's decease. If I am correct, it devolved on the consul to appoint an administrator. When informed that Mr. de Beche had advanced this sum of money, the consul seemed to turn it off in a sort of indifferent way, and there the matter dropped for some time. Mr. de Beche wrote at once to Mr. Martin's friends, to whom the body was to be consigned, telling what he had done; but weeks passed, and he received no word of encouragement—not even a brief letter thanking him for advancing money to carry out Mr. Martin's wishes. Everybody seemed indifferent in regard to the matter. Somebody said the Rambler left an apiary and some property in California, but nobody could tell any thing about it. According to strict law (if the matter should get into the hands of lawyers) it looked a little as if our good friend Mr. de Beche might not get any thing (not even thanks) for the time and money he had given. Of course, he relied on the will; but I showed him the letter, which seemed to indicate there was a possibility, and even a probability, that nothing would be got from that source.

My good friend, did you ever in your life do some generous act for somebody else, prompted by the best spirit in the world, and later on have your own friends turn around and criticise you, and may be say mean things about you for this very thing? I have had just such experiences. After giving my time and money in trying to bring out good, and nothing but good, some spirit of the evil one has slipped in and suggested to my friends and neighbors that I was prompted only by selfish motives—that I had an ax hidden away somewhere that I expected to "grind" by the operation. Now, I hope the Cuban friends will forgive me when I say that in some strange way (nobody knows how) the report got out that Mr. de Beche was going to make a *good thing* by promptly handing over all this money to pay for removing the body. I do not know but it was intimated that it did not cost between $400 and $500; and it was even said that the large crop of honey Mr. Martin produced was all sent to Mr. de Beche, and nobody knew what had become of it. As soon as I heard any thing of this sort I promptly replied that, even though Rambler *did* ship his honey to Mr. de Beche, it all went to The A. I. Root Co. to be applied on an account for supplies, etc., he had bought of us. I furthermore rebuked these stories by saying that both

Mr. de Beche and the Root Co. did business in such a way they could at any minute show the figures in black and white for every copper they had received or expended, or for every bit of honey or wax that had been trusted to their care. I rebuked those who were inclined to listen to such stuff, telling them it was childish folly. But I could not see everybody. Let me digress a little.

Shortly before Rambler's death he employed a young man by the name of Gilson. I formed his acquaintance when Mr. Stephen Green, of our office, and I made a trip from Paso Real to Rambler's apiary to get some kodak views of it. Mr. Gilson was out in the woods—or perhaps you may say swamp—hard at work with his bees and honey. He was surrounded by those who spoke only Spanish, and knew very little Spanish himself. No wonder he became lonesome after his employer's death. I shall always remember with what a glad boyish smile he welcomed us. I proposed a trip to the mountains, only a few miles away. Both boys felt a little uncertain as to whether they could conscientiously take the time to go, until I told them I would be responsible for at least *one* day's vacation. We mounted our wheels and started off in high glee. Young Gilson soon performed such tricks over the rough Cuban roads, in difficult wheel-riding, that I asked him if he was not a professional "trick rider" on the wheel. He seemed pleased to receive the compliment. And what fun we had, especially when we reached Mr. Young's apiary, and got him to join with us! The boys pulled off their coats and vests, gathered pebbles on the shore of the river, threw at marks, skipped stones on the water, until it made me think of schooldays, and the time when "school was out" in the afternoon. I have not space here to tell you all about our mountain-climbing; but before night I had formed a very favorable opinion of my three companions. During that acquaintance Mr. Gilson informed me that he had no money at the time of Rambler's death, and had received none since, having made no sales of honey nor any thing else; that he had been running up accounts at the store at Taco-Taco, waiting for some orders to be given by the American consul at Havana. He asked me what he had better do. He showed me a letter he had received from Mr. de Beche, advising him to bring to the city some honey he had on hand, and get permission from the consul to sell it. I told him to do exactly as Mr. de Beche directed him. Now, friends, please do not criticise my young friend Gilson, nor say any thing hard about him, when I tell you that, hearing of these things I have mentioned above, when he got to Havana he went direct to the office of the consul, without visiting Mr. de Beche. He told me, some time afterward, that the consul seemed to be too full of business to listen to a boy. Finally he turned on him briefly and made a speech something like this:

"Mr. Gilson, if somebody left in your charge a lot of chickens, and by some accident did not get back as soon as he expected to, would you let the chickens starve to death, or would you feed them?"

Mr. Gilson told him, of course, that he would feed the chickens.

"Well, now, it is just the same with those bees. You sell enough honey to get what you need to take good care of the bees until you get further notice."

You see the consul did not appoint Mr. Gilson as administrator or manager. He did not give him any document or paper of any sort. He simply told him to sell honey enough to get funds to pay running expenses and let it drop. I can not now explain why Mr. Gilson did not go and tell Mr. de Beche what the consul said; but, boylike, he jumped on his wheel and put off for *home.**

I happened to go into Mr. de Beche's office the very morning after he had discovered that Mr. Gilson had been to see the consul, and gone home without meeting him. I suppose my good friend Mr. de Beche will scold when he sees this in print; but I want to say to the readers of GLEANINGS that he is one of the most generous, whole-souled, energetic, go-ahead business young men I have ever met. When our bees landed in Cuba, and the custom-house officers were going to endanger the lives of the colonies by "red tape" routine after they had got thus far, Mr. de Beche showed his business ability better than any Yankee could do. In fact, I am not sure we have any Yankees that could equal him. He talked Spanish, French, and American to the different officials. Then he took off his coat, and carried more hives of bees from the boat-landing to the railway than any other man, American or Cuban. Not satisfied with this he went to Paso Real and worked all night in unloading the bees. He got out the Spaniards with their ox teams, and made them work in the night when they did not want to; and when they were going to charge about four prices for their services he coolly informed them they were not dealing with an American. He told them that he was a Spaniard, and knew their tricks; and he paid them reasonable prices for their work, and would not give them any more. I never saw Mr. de Beche, except once, when he was not a smiling, jolly, good-natured fellow. By the way, he is as spry as a cat; and when he is going through the narrow streets of Havana, turning corner after corner, if you get your eye on him you have got to be pretty smart to keep him in sight. Well, on this morning in question he did not look quite happy. He told me something of the way things were going. He said he had paid out all this money, and had not received a word of thanks from anybody. No one had volunteered even a part of the expense — that is, if Mr. Martin's friends in York State should not approve of the course he had taken. I hastened to apologize for *my* neglect in the matter, and told him I had been ready to stand by him ever since Mr. Martin's death, but had been backward in saying that our company would see that he did not lose by what he had done. Then I attempted to excuse my young friend Gilson. Said I, "Mr. de Beche, when he comes to think it over I am sure his conscience will trouble him so that he will come back and apologize, or write you a letter."

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*Of course, Mr. de Beche did not know this. He only ascertained that Mr. Gilson had been in Havana, had been to visit the consul, and had sold some honey. As we talked it over, it looked to both of us at first as if the consul might have appointed Mr. Gilson administrator, and authorized him to dispose of the apiary should he see fit. On further reflection I was satisfied this could not have been done.

"Mr. Root, I do not want to see him. I *won't* see him. If I see him coming on the street I will lock the door. If he writes me a letter I will burn it up without reading it. I shall go at once and get a lawyer. I will put the matter all in his hands. I will be placed fairly before the world, even if it costs $500 more, and I won't care either. I have wasted money before in that way, just because I was foolish and trusted to other folks to stand by me."

Of course, the above are not Mr. de Beche's exact words, but it was something in that line. I give it as nearly as I can remember. I said, "Mr. de Beche, you are excited now. I know you have just grounds for complaint, but I beg of you to wait a little. Wait till next Monday."

"No, I can not wait an hour."

Then he got up to go out. I put my hand on his shoulder, and, laughing at him, told him he must wait till I had told him a little story. And by the way, good friends, I think *you* may hear the story too, if you will listen. It has a moral to it.

A. I. ROOT'S STORY.

"Some time ago there lived in Matanzas a millionaire who had invested very largely in the sugar business. You may remember a time when sugar was very low. It went so far down that everybody thought it could not *possibly* go lower. This millionaire kept buying with the expectation that it would soon go up. He invested every thing he could get hold of. He borrowed money of his friends, and persuaded other friends to go into it. But sugar still kept dropping. Finally it got to a point where it would make him a financial wreck. In just a few hours his speculations (or gambling, I suppose it was, to call things by their right name) would come out before the world. The means which he had used to get others in with him in this matter were soon to be brought to light. Ignominy and disgrace stared him in the face. He took a revolver and blew out his brains. Satan had got hold of him—had got into his heart, and persuaded him that he had better die than face the disgrace. But in just *eighteen hours* after his death sugar made a big bound upward; and had he been patient—had he restrained himself from that wicked act, and said, Get thee behind me, Satan, he would have been able to meet all liabilities, to restore every copper he had taken that did not justly belong to him—yes, and he would have been a millionaire still, with opportunities for doing a vast amount of good with his great wealth."

I paused in my story, and looked smilingly into the face of my friend. His countenance had been gradually softening, and there was a quizzical expression on his face as he said, "Why, Mr. Root, you do not suppose that I am going to commit *suicide*, do you?"

"No, I did not think you were going to do that—God forbid; but I *did* fear you were going to do something that you would afterward much regret."

"Well, Mr. Root, you know just how this matter stands. You know how I have waited weeks and weeks, without getting a word of encouragement from anybody, and you see how it turned out. They are even accusing me of *appropriating* Rambler's hard earnings."

"Do you want my opinion as to what you should do? It is this: 'Be not weary in well doing, for in due time you shall reap if you faint not.' And meanwhile you just let this matter rest till next Monday morning. You will promise me that, will you not?"

He did not give me any promise; but the way he smiled when he took off his coat and sat down to his desk made me feel that I had won my point. I went up to him and said, "Now look here, my friend, don't consult a lawyer, nor do any thing in this matter, until you see me again. I will get back some time next week, just as soon as I can."*

I went to my room, put on my light Cuban suit, and put my wheel in order for a long ride; but I shall have to tell you the outcome of that ride in our next issue.

NOTES OF TRAVEL
BY A. I. ROOT.

CUBAN BEE-KEEPERS AND CUBAN APIARIES.

I did not get any further east of Havana than Cardenas; and I had a very pleasant visit there with Mr. J. B. Hamel. Cardenas is more modern in its make-up than most of the towns in Cuba. It has beautiful broad level streets, all running at right angles — no diagonals nor wedge-shaped blocks. Right in the center of the town there is a beautiful square with exotic plants, and in the center a very fine piece of statuary representing Christopher Columbus.* Mr. Hamel is rather more of a dealer in honey and wax, I take it, than a bee-keeper. At the time of my visit I think he felt a little troubled because the price of honey was so low, and he had such an immense stock of it in his spacious warehouse. As the price went up a little afterward, however, I presume he disposed of it without loss. His apiary was only a short drive out of the city. The hives were scattered about in the shade of some of the great tropical fruit-trees and royal palms.

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*After Mr. de Beche had heard my story he remarked that he presumed he knew more about the affair than I did, for he was employed at the time to assist in settling up matters after the death of the millionaire. When I asked if I had got my story correct, he said I had it substantially so.

Of course, I was specially interested, while in Cuba, in the "homes" of the people. Round about Paso Real, and throughout the country generally, I felt greatly pained to find so many homes destitute of the comforts of life. Many of the friends told me the good homes were destroyed and burned during the war; and as the people were poor, and oftentimes almost entirely destitute, they were getting along with any sort of roof over their heads until they could build better homes. For some reason the city of Cardenas seemed to have escaped the destruction during war times. The home of friend Hamel is not only one of the finest that I visited in Cuba, but I think I may say it is one of the finest in all its appointments I ever saw anywhere. It reminded me of the stories I had read of Oriental luxury — of the palaces described by Ben Hur so vividly, etc. Friend Hamel is the happy father (or ought to be) of a goodly number of handsome young ladies. I think there is only one son. Some of them spoke enough English so I passed a very pleasant evening. In the way of a well-spread table, the evening meal I was asked to share with them equaled any repast I ever before partook of. Not only was there most of the dishes I was acquainted with, but a good many of them I had never tasted of before. I asked so many questions about the new things I almost felt ashamed of myself. His son is a good deal interested in gardening, and is busy just now in testing different fruits and vegetables from the North to see what will and what will not grow in Cuba.

Speaking of his accomplished daughters reminds me that, when I got in a strange place, and could not find anybody who could talk English, I almost always found some *good woman* who could not only sympathize with me, but could get me out of my trouble. It brought to mind very vividly poor Rambler's experience when inquiring the way to Marianao, when "a petite jewel of a woman took interest in the matter." See page 330 of last year. On my way from Cardenas back to Havana I heard some of the passengers speak of Güines; and when we arrived at a station where there is a branch road, several got off to take the other road to Güines — at least I gathered this from the conductor. Now, I wanted to visit Güines; and although I had a ticket back to Havana, I thought if it would save me very much time I could lose the value of my ticket by taking the branch road. First, I wanted to know how long I would have to wait at that station to catch the train for Güines. I went clear through the car, asking the passengers if they talked English. I showed my ticket, pointed to my watch, etc. They all seemed very anxious to help me; and some of them, *especially* the women, seemed distressed to think they could *not* help an unfortunate foreigner out of his perplexity. By the way, I do not know exactly why, but it has seemed as though the feminine portion of creation always sympathizes with me, even when those of my own sex do not care whether I am in trouble or not. On this particular occasion a very bright and pretty young woman indicated to me by her looks that she knew what I wanted, and seemed anxious to help me, even though she was not ready to admit she could speak English; and you know it is not always exactly the thing to do, for a young lady traveling alone, to be too familiar with a stranger, even if he *is* in trouble. I finally approached her, raised my cap, and said, "My good friend, I hope you will excuse me when I tell you that I judge by the expression on your face that you can command English enough to give me the information I want. I would not trouble you, but I wish to know, before this train starts, how long I would have to wait here to catch the train for Güines."

She gave me a most bewitching smile, and answered hesitatingly, and with some embarrassment, in a musical voice, "I think—train—Güines—half hour."

I thanked her the best I knew how, and begged her for just one more piece of information. "Now can you tell me about how long I would have to wait at *Matanzas* to catch a train to Güines?"

She studied a minute, gave me another of her smiles, and replied, "I think—may be —all day."*

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* While the very narrow streets in the great city of Havana, where even a square foot of land is worth so much money, may be all right, the new towns in Cuba are being started on a different plan. When one becomes accustomed to those very narrow sidewalks, 18 to 24 inches wide, he gets along pretty well; and, in fact, these narrow streets, with their canvas covering during the hottest part of the day, make it very pleasant and shady, and in some respects a cool retreat that we should not get with wide streets like those in northern cities; but when we consider the electric railways that are pushing into towns everywhere, even in Cuba, it behooves us to start a town on a more liberal scale.

* It just now occurs to me that we here in the United States often laugh at foreigners when they attempt to use our language. Perhaps I have joined in this myself when some poor foreigner made hard work in trying to make his wants known in English; and if God will forgive me I think I shall never do it again. Well, in Cuba there was something wonderfully fascinating, and I might almost say musical, in hearing Cubans try to pronounce English. Some children came into the reading-room at 89 Prado. I was trying to read my Spanish Bible, and, of course, I asked them to help me They were very patient, and we went over the difficult words again and again, until I could pronounce them tolerably well. Then for the sake of a little change I asked them to read on the English side. They were a little bashful about attempting it,

I thanked her again, grabbed my valise, and made a rush for the departing train; but a big woman got in my way with her bundles. The conductor was evidently a little vexed because I did not get on the other train when I had plenty of time, and I had to give it up. The passengers "caught on" enough to indulge in a good laugh at my failure. Very likely they shared with the conductor in wondering why it was I should wait until the train was under way, and suddenly decide to leave the car I was in (with my ticket paid through to Havana, which I had shown to almost everybody in the car), to take the other train.

NATURAL CURIOSITIES; WATER-SUPPLY IN CUBA, ETC.

While at Matanzas my good friend Woodward accompanied me on a visit to the celebrated cave of Bellamar. While I do not like to speak ill of any of the people of Cuba, I do not know but I shall have to mention, as a caution, our experience with a coach-driver. My friend Woodward knew where the cave was, but he did not know how far it was from the city. The driver said it was a long way, and that the best price he could make was $7.00 to take us there and wait till we explored the cave. If I remember correctly we got him down to $4.00, and thought we had made a good thing. It is true the road was pretty rough, and was rather bad for a horse and carriage; but we could easily have walked the distance in an hour, or perhaps half an hour, if we had hurried up. The entrance to the cave is on top of a stony hill. The charge for a guide to go through it is $2.00 for a single person; but if there are two persons it is no more for both. The printed notice that was put up did not say this exactly, but we persuaded the colored man who was in charge that that was what it meant; at least, after some banter he agreed to let us follow the guide for $2.00.

The only method of lighting the cave is by means of huge wax candles, and such light is very inadequate. I should much prefer to give $5.00, and see the whole interior brilliantly lighted up by means of electric globes; and it would not take a very expensive outfit to do it nicely. The bridges, stairways, and hand-rails all through the cave are put up in a very nice and substantial manner—far better than similar structures in Mammoth Cave, Kentucky—at least, better than when I was there in 1885. For quite a spell you go almost straight down. The stalactites and stalagmites are certainly equal to any thing in Mammoth Cave; but, unfortunately, the smoke from the wax candles has spoiled or is spoiling a good deal of their beauty. The water is so strongly charged with minerals that the whole cave is filled with formations that very much resemble the results of letting water drip or trickle outdoors on a cold wintry day. It looks almost exactly like ice, or better, perhaps, very pure transparent alabaster. In one place there is a waterfall that resembles Niagara, not only in shape, but makes some feeble approach to represent it in size. The mineral water has flown over a vast precipice, and piled up a great waterfall through the centuries past. Many of these stalactites give out a metallic ring when struck; and it would be an easy matter to arrange a stalactite piano, such as they have in the Cave of the Winds at Manitou, Col. The guide frequently struck them to let us hear the musical notes that were given forth.

Before we started down, both the guide and the agent advised us to divest ourselves of all surplus clothing. He said we would find it pretty warm down there, and that we had all better get off every bit of our "duds" that we could spare. As I had on a light Cuban summer suit, I thought I was all right; but before I got to the extreme end of the cave I felt as if it would be just delicious to cast off every bit of my clothing, as many of the Cuban children do when under four or five years of age. The heat oppressed me so that I began to think I would exchange all the wondrous sights the cave had to offer for a breath of fresh air; and when we heard the hackman calling from a spot overhead that seemed to be up among the clouds to us, we hustled past the waterfall that I felt sad to view so briefly. We twisted and bent down, and crawled through interminable passages. There were clock-shelves and mantels, and things that resembled human beings and domestic animals, all carved and polished and colored by Nature's fingers. Every little while you can hear the dripping of water. The caves were discovered within a very recent period, so the guide-books tell us.

Now let me advise visitors to heed the request of the guide to dispense with every bit of clothing they can get along without; and let me say to the proprietors of the cave that, if they want the public to patronize them, they will have to get something better than wax candles. Electric globes would be the thing. And last, but not least, there must be some arrangement to start a current of air. A blower and a suitable pipe to carry air to the furthest extremity, so as to ventilate thoroughly all of these wonderful passages, would make it possible for one to spend an hour or two in comfort away down in the bowels of the earth.

After we got back from the cave (and we were not gone over two or three hours) the

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but finally read, one after another, some of the short verses. As I write about it, I can hear even now their childish voices struggling to pronounce the English words. Of course, they would give almost every word a Spanish inflection. They would give *i* the sound of *e*, *e* the sound of *a*, etc. But for some strange reason, I can not tell why, the Spanish inflection as above, together with the trilling of the letter *r*, had a wonderful fascination for me. You see I had been working days and nights for weeks at their language, and it gives me a thrill even now to recall those days; and as I write, I long for the time to come when I can *again* listen to the music of those Spanish words, and look into the faces again of the friends in Cuba whom I love.

hackman swindled us again. I wanted to see Yumuri Valley. He argued, as before, that it was a long way. After quite a "confab" we paid him half the price he wanted, and then discovered we could have *walked* it easily. This valley is a great basin, something the shape of a wash-bowl, if you will excuse the illustration. It is entirely surrounded by mountains, and evidently was once an inland lake; but either Nature or some of the early settlers of the island cut a passage through close to the city of Matanzas, thus connecting it with the ocean; and as the tide rises and lowers, the water goes up a little way into this basin, and then back again. I suppose this great bowl or basin is five miles across, and it may be ten miles. The mountains surrounding it produce a kind of illusion (especially in people not accustomed to seeing mountains), so one can not tell whether he is going up hill or down, except by feeling that it is hard work going one way and easy in going the other.

After my first sight of Yumuri Valley (on another occasion) I followed a trail along up the outlet; and the overhanging rocks and spurs of the mountain produced a sort of weird effect that makes one feel queer. Several times I felt like shaking and pinching myself, and saying, "Well, old fellow, where are you, and 'what are you at,' any way?" It was quite a bad road for the cab-driver, and he got his vehicle in the mud a great deal; but if he had told me truthfully in the outset how far it was to the apiary, I should have very much preferred to go on foot. In fact, he had to hitch his horse and let us go on foot part of the way as it was.

Now, you might think being swindled twice by this same man was enough; but I was very anxious to see another of friend Woodward's apiaries, and make it before train time, and the fellow got a big price for going out there and then *not* doing as he agreed to do. Friend Woodward thought he knew these fellows, and knew how to deal with them; but they took so much time in going over the details of the bargain I suggested paying the man his price, to save time. Then after the fellow violated his contract there was going to be more time spent in settling matters. But I proposed again that we get all the good we could in looking over the apiary, and friend W. and the driver settle their differences after I got away. I am sorry to say this about even a poor colored man. But he hires the rig of the proprietor for so much a day, and there are probably a good many days when he does not get hold of a real live Yankee (that has any money) at all. So he has to make the most of his chances when he catches one.

I am not yet through with Yumuri Valley. No wonder Humboldt said, when he stood on the site of the old church (Monserrate) on the hill that commands a view of this whole basin, that it was one of the lovliest valleys in all the world. It is worth a trip to Matanzas to get this view; and I declare I do not know but it is almost worth a trip to Cuba.

Now, I must not wind up my Cuba travels without a further mention of the wonderful spring or springs that supply the city of Havana with water. This spring is near a station called Vento. A great aqueduct, almost large enough for a man to stand up in, carries the water from Vento to Havana, a distance of nine miles. This aqueduct and all its appointments were made by the Cuban government, and the work is certainly well done. The great springs of Vento are walled in with a circular piece of masonry rising 60 feet high. On top of this masonry is an iron fence to keep intruders out. It is all kept under lock and key. This masonry is about 200 feet across the top of the circular basin, and perhaps 100 feet at the bottom. The water is not quite soft; but it is beautiful drinking-water. Where it runs over the stones it leaves no sediment nor incrustation. I do not think it even crusts the pipes. The water boils up a great deal like the springs at Castalia, O., or near Lebanon, Mo. The stones on the bottom are variously colored, like the springs I have mentioned. If I remember correctly, a million gallons of water goes to waste every day after supplying the great city of Havana with all the people need for any purpose. Just as the aqueduct starts out from the spring it meets quite a river; and by a sort of inverted siphon the water goes down under this river. Here the Spanish people have shown their skill in hydraulic architecture, if I may use the term. Along the side of the aqueduct that goes under the river is a large tunnel, giving plenty of room for the men employed to care for the waterworks to go back and forth with a lighted lantern. Here the great valves are situated that shut off the water whenever it is desirable to repair or clear the aqueduct; and at short intervals all the way from the spring to Havana there are round houses that permit the workmen to get out of and into the aqueduct, and also to let in fresh air when at work in cleaning or repairing the great waterway.

Perhaps I should caution visitors that one can visit and go through these waterworks only on certain days. My friend Mr. de Beche, however, being acquainted with the officials, succeeded in getting a permit to go through, even though it was not the regular day. This system of waterworks was commenced, I am told, in 1858, and completed in 1878. The river under it is called the Almenderas. About 41½ millions of gallons of water is delivered in the city of Havana daily. The spring is so high above the city that the water goes all over it by gravity. A beautiful stone road, or "calzada," runs out from the city to Vento. The water is of such excellent quality that I, while in the city, for the first time in years found I could drink cold water without interfering with my digestion; but when I was out in the country where water was procured from different sources, I found by experience I should have to take the trouble to drink boiled water; and the simplest way to get it would be to ask for hot water (*agua caliente*). The waiters at the restaurants said many times that, while tea and coffee were constantly in demand, hot water was something that nobody ever called for before, and they looked at me as a sort of curiosity — a human being who preferred hot water to good tea and coffee.

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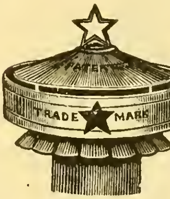

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the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

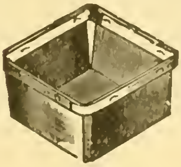
Squab Book Free

Squabs are raised in 1 month, bring *big prices.* Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into.* Send for our **Free Book,** "How to Make Money With Squabs," and learn this rich industry. Address

PLYMOUTH ROCK SQUAB CO.,
19 Friend St., Boston, Mass.

Fruit Packages of All Kinds.

—ALSO—



BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

A Great Buggy Bargain

HOW YOU CAN GET IT.

Combination Offer **$42.50** Regular Price **$65.25**

Cut out this advertisement and send it to us with **$5 at once** and we will send you a complete description and large colored illustration of this **SPECIAL ECONOMY IDEAL BUGGY** which we will make to your order, also description of our *Economy Storm Front* and *Economy Dust Hood,* illustrated below. Your $5 will reserve you one of these Buggies, together with Storm Front and Dust Hood. **Until June 7, for $42.50**

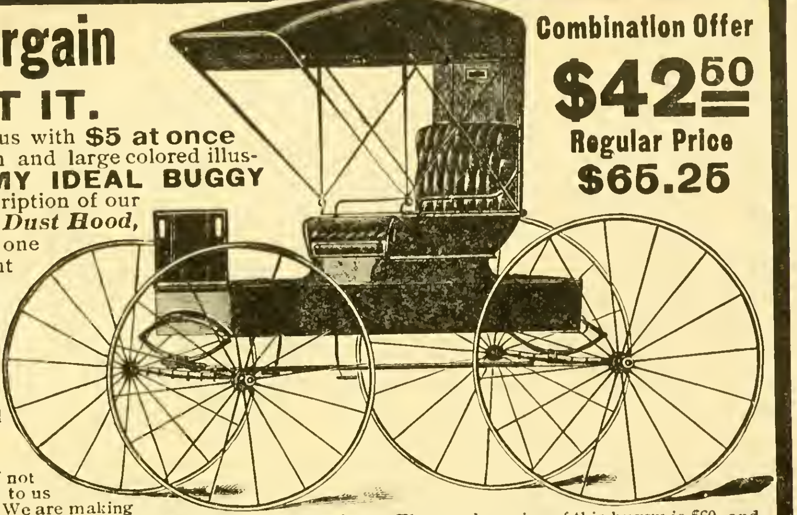
When you get our catalogue and circulars if you are not satisfied that it is the buggy you want, we will return the $5 to you. If satisfactory, when you are ready for buggy send us the balance, ***$37.50*** and shipping instructions. **10 Days' Free Trial.**

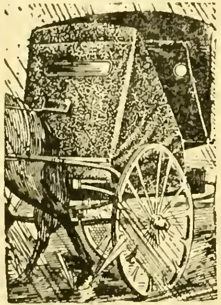
After the buggy reaches you try it ten days, and if not absolutely satisfied with your purchase, return it to us and we will send back every dollar of your money. We are making this wonderful offer for advertising purposes. Have only **1000 Jobs** to sell at these prices. The regular price of this buggy is $60, and regular price of Dust Hood and Storm Front, $5.25. ***Offer will close promptly JUNE 7th,*** and price advance to regular price. You take no chance in sending us the $5. We are responsible, or the editor of this paper would not publish the advertisement. Read fully the description given herewith and write at once. ***The Storm Front*** the finest thing ever invented for rough weather. ***Dust Hood*** protects buggy top when down, giving neat appearance to vehicle. Storm front and dust hood are adjustable and can be used on any other buggy.

CAUTION: **We are manufacturers, making only Buggies and Harness. Do not confuse us with general mail order houses.**

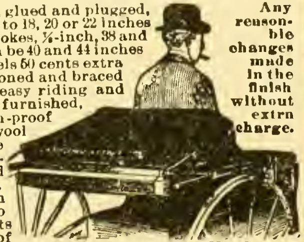
General Description **BODY**—Extra well made, poplar panels, ash sills, screwed, glued and plugged, 24 inches wide, 54 inches long. Can change the width of body to 18, 20 or 22 inches wide, or Corning style instead of the piano box, if wanted. **WHEELS**—Sarven patent, 16 spokes, ⅞-inch, 38 and 42 inches high with ⅞-in. steel tires, bolted between each spoke, screws in rims. Wheels can be 40 and 44 inches high, 36 and 40 or 42 and 46 inches high, if preferred, without extra charge. 1 inch wheels 60 cents extra **AXLES**—Long distance, dust proof, finest quality steel, with double hickory reaches full ironed and braced Rear king bolt fifth wheel. **SPRINGS**—Tempered in oil, three and four plate, graded for easy riding and strength. Bailey body loops are clipped on. Wooden spring bar in place of Bailey body loops furnished, when wanted. **TOP**—Leather quarters and leather back stays Heavy, leather grained, water-proof rubber roof, back curtain and side curtains. Back curtain lined. Head-lining is dark green wool cloth. Three bow top regular, four bow top furnished when wanted. **Upholstering**—In the seat and back is dark green imported, all wool, 16-oz. broadcloth. Whipcord trimming, if preferred. Genuine No. 1 leather trimming $1 extra. **PAINTING**—Regular 16 coat oil and lead priming. Body plain black. Gear any color, nicely striped. Body can be striped, if wanted. This buggy is furnished complete with all attachments, including storm front, as shown in this advertisement, which closes up the entire front of the buggy, also with a dust hood, to prevent any dirt or dust accumulating in the top when down. Finest quality of hickory shafts with 36-inch shaft leathers, double braced. Brussels carpet in the bottom with the insides of panels carpeted, water-proof boot on the back of body. Quick shifting shaft couplings, leather dash. Will weigh about 315 lbs.

Any reasonable changes made in the finish without extra charge.





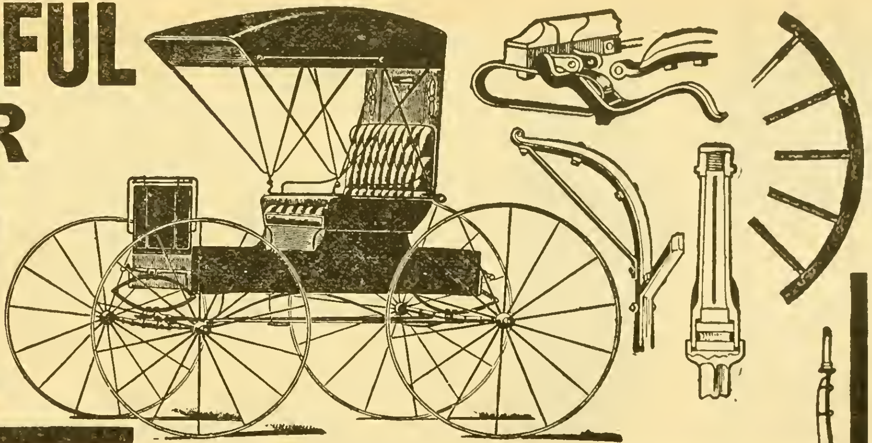
Economy Storm Front



Economy Dust Hood.

Many are making reservations for these buggies. Why not You! **Remember this Offer Closes JUNE 7, 1903.**

ECONOMY BUGGY CO., Box B 27, CINCINNATI, OHIO.



A WONDERFUL
SELLER
Split Hickory
SPECIAL
$47.50

The reasons why we are having such a phenomenal sale on this particular buggy are easy to see.

First, It is our Celebrated Brand—**SPLIT HICKORY SPECIAL** (Split, not sawed). *Second*, It has **100 Points of Merit.** (Read some of them given below). *Third*, It is a regular $75.00 Buggy, sold to the Consumer direct for only **$47.50.** *Fourth*, Our fair method of selling. We allow the purchaser **30 DAYS' FREE TRIAL** and if after that trial the purchaser is not satisfied in every particular that it is the best buggy he has ever seen, from the standpoint of finish, style and durability, he can return it to us at our expense and not be out one cent in the transaction. *Fifth*, Our ironclad guarantee of two years from date of sale. *Sixth*, We manufacture every buggy we offer for sale in our own factory. You cannot get a Split Hickory from anyone else, as we sell only to the consumer and do not sell jobber or retailer. *Seventh*, You take absolutely no risk in dealing with us, as we make good every one of our claims. The editor of this paper would not permit our advertisement to appear if we were not responsible, and **HERE ARE A FEW OF THE 100 POINTS OF MERIT on this Special Job.** There are many other reasons too numerous to mention in an advertisement.

Wheels, shafts, body and all gear woods carried one hundred days in pure oil and lead before painted. 36-inch genuine leathers on the shafts. Special heel braces on shafts. Quick shifting shaft couplings. Long distance, dust proof axles. Full length velvet carpet and side panel carpets. Full length steel body loops. Reinforced back curtain. Screwed rim wheels. Longitudinal center spring under the body. Four extra clips on the axles. More than are furnished by anyone else. ¼-inch steel tires. Full box frame spring cushion. Solid panel spring back. All wool head-lining. Genuine full leather quarter top with genuine rubber roof, back curtain and side curtains. Body, fancy striped or plain as preferred. Gear painted any color wanted. Full silver mountings, without extra charge, if ordered.

We ship the buggy any where, to any one, on the free trial plan. **YOU SHOULD WRITE AT ONCE** for our handsome, new illustrated catalog, which describes every part of the buggy and also illustrates and describes a complete line of all styles of **SPLIT HICKORY VEHICLES** at prices that will save you $25.00 to $50.00 on a vehicle. We have thousands of testimonials from customers all over the world who have saved money from buying of us. We can save you money and give you a better vehicle than you ever saw before. Try us and see. *Write for a Catalog today.* You will want your buggy soon now. Understand that we will finish it any way you want us to if you order early. Our catalog will post you on prices and styles even if you do not buy of us.

CAUTION Do not confuse us with any mail order house in the country, as we are exclusive manufacturers of Split Hickory Vehicles only, and do not deal with seconds or picked up jobs. Every vehicle we sell is made in our own factory.

THE OHIO CARRIAGE MFG. COMPANY, **Station 27** **Cincinnati, Ohio.**
Incorporated under the Laws of Ohio.

DOUBLE YOUR SALARY

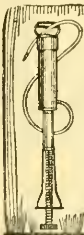
Don't spend spare time thinking what you might be if your salary were doubled! *Doing*, not thinking, will make your wish a reality. Our free booklet, "Are Your Hands Tied?" tells you what to do and how to do it. Thousands have already doubled or largely increased their salaries by following our plan. Under our guidance you can do the same. Act today! I. C. S. Textbooks make it easy for those already at work to

Learn By Mail

Mechanical, Steam, Electrical, Civil, Mining, Telephone, and Telegraph Engineering; Shop and Foundry Practice; Mechanical Drawing; Architecture; Plumbing; Sheet-Metal Pattern Drafting; Chemistry; Ornamental Design; Lettering; Bookkeeping; Stenography; English Branches; Teaching; Locomotive Running; Electrotherapeutics; German; Spanish; French.

Circular free. State subject that interests you.

INTERNATIONAL CORRESPONDENCE SCHOOLS,
Box 799, SCRANTON, PA.



Good Bye

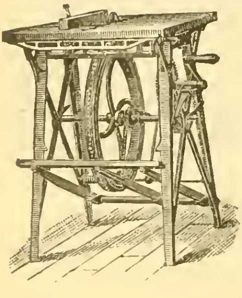
old whitewash brush with your hard work and waste of time.

The Hardie Whitewashing Machine

not only works much faster but forces the liquid into every crack and destroys insect life which a brush would pass over.

Send $7.50 for the complete machine, express prepaid, if you are not satisfied we return the money. Full particulars if you need them. Address Dept. J

HARDIE SPRAY PUMP
— MFG. CO. —
DETROIT, MICH.
WINDSOR, ONT.



BARNES'
Hand and Foot Power
Machinery.

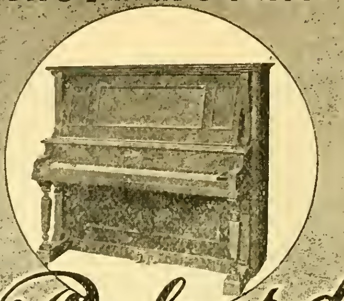
This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial.

Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

The Ideal Piano



Packard

Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the

Highest Artistic Creation

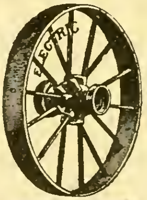
Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. *Catalog and full information free on application.*

THE PACKARD COMPANY
P. O. Box F Fort Wayne, Indiana

THE BREAK DOWN

is usually in the wheel. They receive the strain and wear. They dry out, spokes and feloes rot, tires come loose. Get the service out of wheels you do out of gears by using

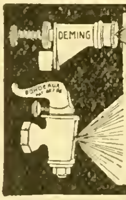
Electric Metal Wheels.



You have a wagon for a life time. Electrics are the staunchest, tightest, easiest running wheels made. Straight or staggered oval steel spokes, cast in the hub, hot riveted in tire. Broad tires, no rutting, light draft, any height, fit any wagon.

Write for free illustrated catalogue on Electric Wheels and Handy Wagons.

ELECTRIC WHEEL CO.,
Box 95, Quincy, Ills.



SPRAYING

Our line of sprayers and appliances fits every man's needs.

Hand, Knapsack, Bucket, Field, Barrel, and Power

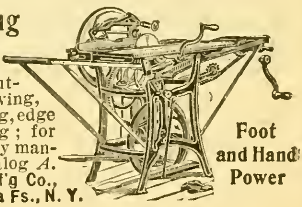
sprayers, twenty styles. Best nozzles made, attachments, formulas etc. Select the useful and reliable. Catalog free

THE DEMING CO., Salem, Ohio.
Western agents, Henion & Hubbell, Chicago, Ill.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A.*

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.



Foot and Hand Power

READY FOR

Prompt Delivery

Red-clover Untested Italian Queens:	Each, $1;	six, $ 5.70.
Red-clover Tested Italian Queens:	Each, $2;	six, 11.40.
Red-clover Select T's'd It'n Queens:	Each, $3;	six, 17.10.
Italian Breeding Queens:	Each, $5.00, $7.50, and $10.00.	
Best Imported Italian Queens:	Each, $5.00.	

If you are in a hurry, send us your order.

If you want good queens, send us your order.

We do not handle cheap queens.

If you want Nuclei or Full Colonies, let us quote you prices. State how many you can use.

Gleanings in Bee Culture, one year, and an Untested Italian Queen, for only $1.00. We have already mailed some premium queens, and expect to send them out within a week after orders are received. Don't delay if you want a queen early when she will do you the best service. Queen circular free.

The A. I. Root Co., Medina, O.

Notice.

Have all queen orders can fill by June 1st. Orders booked and filled in turn.

W. O. VICTOR,
WHARTON, TEX.

Pure Italian Queens in State of Washington!

My friends and patrons I wish to thank for their many kind words; my aim is to do still better. Mismating will be rare if ever. I keep only pure stock. Have imported queens from some of the most prominent breeders, and queens are reared by the natural-swarming process. Prices in May and June: Tested, $1.50; untested, $1.00; after June, 25 cts. less for either.

Robt. Mirring, Dryad, Lewis Co., Wash.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Do You Know that you could come nearer getting what you want, and when you want it, from the New Century Queen-Rearing Co. (John W Pharr & C. B. Bankston), than anywhere in the United States? Untested, 50c.; tested, 3 and 5 band, 75c; all other races, $1.00. Send for circular. **Berclair, Goliad Co., Texas.**

For 1903 You Require
I Supply

PERFECT QUEENS

Norristown, Pa., March 14, 1903.

Dear Sir.—Find inclosed $1.00 for one untested Golden queen. . . . I wish you would send a queen just like I bought of you last spring. It is one of the best and prettiest queens I ever had. At present my apiary numbers 35 colonies. Yours truly.

HENRY A. MARKLEY.

These queens are giving general satisfaction. Try some. Address

GEO. J. VANDE VORD, Daytona, Fla.

Leather-colored Italians For Sale.

My bees were awarded 1st premium at the Minnesota State Fair in 1902 and 1901. Queens guaranteed in quality and transportation. In standard 8 or 9 frame hives, $5.00 each on car. A reduction on lots of 20 and over. Strong colonies now ready for shipment.

**W. R. ANSELL, Mille Lacs Apiaries,
Milaca, Minnesota.**

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence, ; Doniphan, Missouri.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin=the=Queen=Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long=tongued Red=clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa , writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens Before July First.

	1	6	12
Selected Warranted	$1 00	$5 00	$9 50
Tested	1 50	8 00	15 00
Select Tested	2 00	10 50	
Extra Selected Tested—the best that money can buy	4 00		
Two-frame Nuclei, no Queen	2 50	14 00	25 00

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin=the=Queen=Breeder, Parkertown, OHIO.

Queens

My specialty is queen-rearing I rear two strains only—Long-tongue Red-clover Three-banded and the Golden Five-banders that work red clover as well as the three-banders. These two strains are the best bees in this country, all things considered. I furnish more dealers with queens than any other breeder in this country. Why? Because the queens give their customers the best satisfaction I insure all to be purely mated. Untested, 75c each; tested, in April, $1.25—after April, $1 00 each. My former address was Caryville, Tenn., but my queen trade has doubled for several years and I have moved to Texas. Remit by postal money order to **Daniel Wurth, Karnes City, Karnes Co., Texas.**

Laws' Leather=colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring —*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5 banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity, from 5 to 35 miles apart, February and March, $1.00 each, or $9.00 per dozen. All other months, 75c each, $4.25 for six, or $8 00 per dozen. Tested queens of either race, from $1.50 to $3.00 each. Breeders from $3.50 to $10.00 each 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**
P. O. Box 79, Beeville, Bee County, Texas.

$QUEENS--$BEES--NOW.

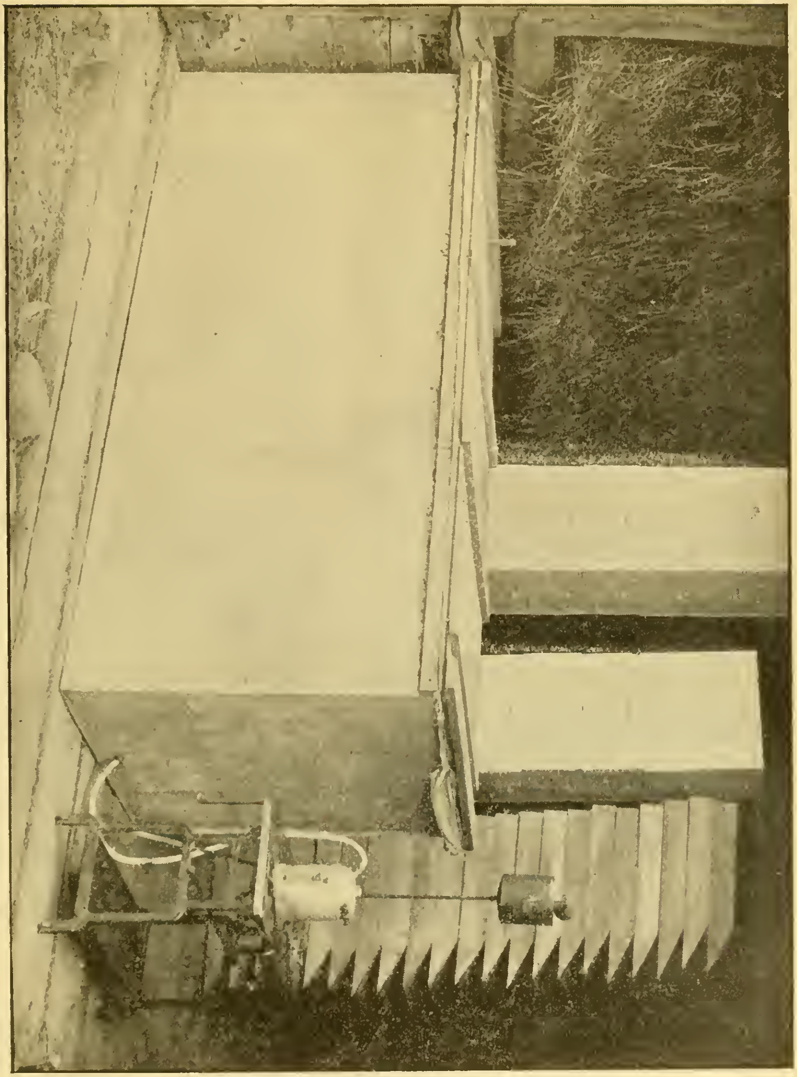
A. L. Swinson, Queen=breeder, furnishes best to be had in U. S. **First=handed,** Warranted queens, $1.00. Tested, $1.50. Breeders, $5 to $10. **American Albino Italians,** and **Adels** mated to **Albinos.**

SWINSON & BOARDMAN,
Box 358, Macon, Ga.

Do You Buy Queens

If so, it will pay you to investigate my claims. I breed from best honey-gathering stock, and rear queens by best-known methods. I guarantee good queens, and beautiful, gentle bees. Some of my customers have bought 100 to 300 queens per year for *their own yards.* Write for circular and information. Untested queens, $1 00; $9 00 per dozen; tested, $1.25.

J. B. CASE, Port Orange, Fla.



C. A. Huff's Tank for Fumigating Foul-Broody Combs.

There is a descriptive article accompanying this cut in the May REVIEW, showing how Mr. Huff destroyed foul brood in combs by fumigating them with formalin gas. Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the sender to the REVIEW one year for only 90 cents.

W. Z. Hutchinson, Flint, Michigan.

Send 10c and the names and addresses of ten fruit-growers to

Southern Fruit Grower, Chattanooga, Tennessee,

for a year's subscription. Regular price 50c per year. Offer good only to new subscribers. Twenty pages or more every month. If you grow any kind of fruits you can not well afford to be without it. Samples free.

SLUG SHOT kills currant-worms, potato-bugs, cabbage, worms, and insects on flowers; used 22 years successfully. **Sold by the Seed-dealers.** For booklet on Bugs and Blight, address

B. Hammond. - Fishkill-on-Hudson, - New York.

Special Notices By Our Business Manager

BUSINESS STILL BOOMING.

A late cold spring has checked orders in some directions, but not enough to relieve the pressure on us for goods. Most of our small orders, or less than carload shipments go out within a few days; but our dealers have to wait three or four weeks, and sometimes longer, for carload shipments. We are gaining a little on carload orders, and hope, by the end of the month, if we do not get too many new orders, to be in better shape.

BEESWAX MARKET.

The market for beeswax is already showing a weakening tendency. We have stock enough on hand to finish the season without buying any more from wax-dealers; and if present conditions continue we shall have to mark our price down a notch with June 1st issue. For a month or two past we have been accepting it right and left till we have accumulated a large stock, but it takes a large stock to keep us going. We have shipped, since the first of September last, over 100,000 lbs. of foundation. During April our shipments were over 22,000 lbs., and May bids fair to equal or surpass it.

PAPER HONEY-BAGS.

☞We hereby withdraw the prices named a month ago on paper bags for putting up candied honey. We find a number of things involved in this bag business which we had not taken into account when we made the announcement which we did. Mr. Aiken, of Lovelend, Col., had been making some preparations to supply the demand for bags, but has turned the matter entirely over to us, inasmuch as we have better facilities for distributing them through our agencies. Owing to the fact that the printing of the label on these bags, when properly done, must be done before the bag is made up or coated, it is going to be impossible to supply them with any other than the regular stock label except in very large quantities, at least 10 000 of a size. We hope to arrange to fill in name and address on small quantities in a satisfactory manner; will try to have complete announcement ready for next issue. We have the 2-lb. size in stock of the dark unbleached paper, and without any printing; will furnish these to those who wish to try a few at 1 cent each, postpaid, in lots of 10 or more.

Special Notices by A. I. Root.

WANTED.

Seed of the Rocky Mountain bee-plant and spider-plant.

SEED POTATOES AT 60 CENTS A BUSHEL.

We have about 150 bushels left, principally Red Bliss Triumph, Freeman, Lee's Favorite, California Russet, Maule's Commercial. We have also a few Early Michigan, Twentieth Century, and King of Michigan. While they last, any of the above at 60 cts. per bushel, except the Triumph, and these will be *only 50 cents a bushel.*

THE NEW ONION CULTURE, NEW EDITION.

Our friends may remember that the first edition, by T. Greiner, came out in 1891. The present edition is greatly enlarged, and substantially bound in cloth. It not only tells all about sowing the seeds, and starting plants under glass, but it is a pretty good treatise on growing onions generally. It speaks of the new Giant Gibraltar onion, also of the Beaulieu hardy white onion that stands over winter and gives the first nice ripe onions in the spring. The book treats *especially*, however, of growing onions here in America, to take the place of the fancy Spanish imported onions. It has 150 pages and is fully illustrated. Price 50 cts. postpaid. We can mail it from this office.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95.

This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.

Readers OF Gleanings

desiring to know the results of my forty years' experience in rearing queen-bees, and to learn of my new process of producing queens, can do so by purchasing a copy of IMPROVED QUEEN-REARING. The book and a valuable Adel breeder sent by mail for $2. Pr spectus and catalog ready. *Adel bees have a world-wide reputation.*

Henry Alley, Wenham, Mass.

Queens == 1903 == Queens.

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Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Langstroth extracting-combs (wired) in any quantity. A. D. D. WOOD. Lansing, Mich.

WANTED.—To sell Sir Walter Raleigh seed potatoes, 60c bu. A. P. Lawrence, Hickory Corners, Mich.

WANTED.—Man to raise queens, and take care of bees.
F. H. FARMER, 182 Friend St., Boston, Mass.

WANTED.—To sell 400 good extracting combs, L. size, 12½ cts. each.
F. H. MCFARLAND, Hyde Park, Vt.

WANTED.—To sell two colonies of bees, also a full line of supplies for the bee-business, very cheap.
A. WILSON, Maywood, Ill.

WANTED.—Apiarists for the West Indies. Several of our correspondents want help. Write at once for particulars. THE A. I. ROOT CO., Medina, O.

WANTED.—Having facilities for rendering wax by steam, I will pay cash for old comb.
N. L. STEVENS, R. D. 6, Moravia, N. Y.

WANTED—To sell 200 5-gal. honey-cans, all in A No. 1 shape, at 10c per can, f. o. b. at Detroit.
CHAS. C. CHAMBERLIN, Romeo, Mich.

WANTED.—To exchange or sell 50 colonies of Italian bees. for honey or cash.
DAVID DANIEL, Hawthorn, Pa.

WANTED.—To sell single-comb White Leghorn eggs for hatching at $1.00 for 26; $3.00 per 100.
J. P. WATTS, Kerrmoor, Pa.

WANTED.—At once, 200 swarms bees. Will pay cash. QUIRIN, THE QUEEN-BREEDER,
Parkertown, Ohio.

WANTED.—To sell first-class tupelo honey in barrels of about 375 lbs. net, at 6c f. o. b.
G. F. TUCKER, Iola, Fla.

WANTED.—To exchange for honey, or cash, 60-lb. cans. good as new, per case of two cans, f. o. b. here, 40 cents.
G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—Cowan extractor for taking frames 12 inches deep; also four-inch smoker and honey-knife. L. CLARK, Wiscoy, Minn.

WANTED.—To sell my farm of 102 acres and 40 colonies of bees; old age, the reason; correspondence solicited. WM. G. SNODGRASS,
Montrose, Henry Co., Mo.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange bees for foot-power saw. Sixty colonies of bees in fine condition for sale; also two fine improved farms for sale.
F. L. WRIGHT, Webberville, R. F. D. 2, Mich.

WANTED.—To exchange or sell for cash, selected, second-hand 60-lb. cans, practically as good as new, for 35 cts. per case f. o. b. Chicago.
B. WALKER, Clyde, Illinois.

WANTED.—To sell a Barnes foot-power saw, power attachment complete, good as new; out of the business. Also Wilson bone-mill (never used 2 hours). Both cheap. H. L. GRAHAM, Grandview, Iowa.

WANTED—To sell or exchange 25 Simplicity hives new and complete, and 100 Simplicity bodies. practically new. Any reasonable offer will be accepted. A. Y. BALDWIN, De Kalb, Ill.

WANTED.—To sell 75 Langstroth hives (10 and 12 frame), with 1000 extracting-combs; also 2000 lbs. extracted basswood honey.
WILBER WOOD, Ono, Wis.

WANTED.—To exchange a genuine Stradivarius violin 150 years old, foundation-mill, bone-mill, shotgun, revolver, clothes-wringer, game roosters, and fox-hound pups. ELIAS FOX, Hillsboro, Wis.

WANTED.—To buy for cash, cheap, 10-frame portico hives with simplicity upper story, with or without brood-frames, in flat. Write quick.
ALBERT L. MARTIN,
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W. L. COGGSHALL, Groton, N. Y.

WANTED.—To sell S. W. ¼ of S. E. ¼ sec. 26. range 26, Crystal Lake Tp., Benzie Co., Mich.; 40 acres just outside corporation of Frankfort; a nearly finished cottage of six rooms, a small stable, 25 bearing apple-trees, a few peach-trees. From front porch can be seen a delightful view of the little city of Frankfort, Lake Michigan, harbor, steamers, etc. Unexcelled as a summer home or a fruit-farm. Only a few hours from Toledo, Detroit, Chicago, Minneapolis, and other cities Write Gen. Pass. Agent of Toledo & Ann Arbor R. R., Toledo, Ohio, for pamphlet describing Frankfort. Cheap at $2200; if bought soon can be secured at $1400. Also for sale 160 acres, 15 miles east of Frankfort; only $2.50 per acre 25 acres ready for the plow. Write C. L. Linkletter, Agent, Frankfort, Mich., or W. A. HOBBS, Owner, Traer, Iowa.

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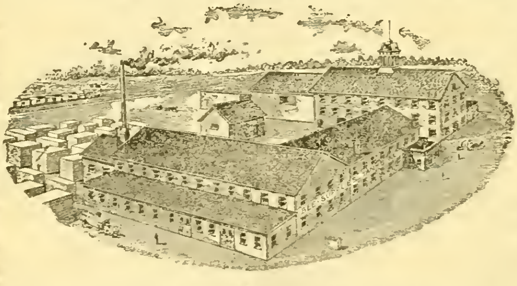

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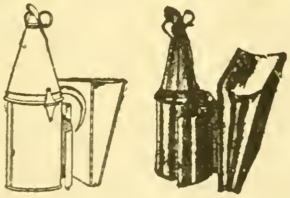

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T. F. Bingham, Farwell, Michigan.

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A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Boston.—Our market is practically entirely cleaned up on comb honey, so that the prices are nominal. Do not look to see any change in this respect until new honey comes in. Extracted is selling still, owing to the warm weather, and we quote our market 7@8, according to quality. Blake, Scott & Lee.
May 12. 31, 33 Commercial St., Boston, Mass.

Albany.—Honey market quiet and unchanged, with light receipts and light demand. We quote white comb, 15@16; mixed, 14@15; dark, 13@14. Extracted, light, 6½@7; dark, 6@6½. Beeswax, 30@32.
MacDougal & Co.,
May 15. 375 Broadway, Albany, N. Y.

Cincinnati.—The demand for comb honey is nearly over; but, as the stock is almost exhausted, prices keep up. Fancy water-white brings 15@16. The demand for extracted has not changed whatever, and prices are as follows: Amber, in barrels, 5¼@5½; in cans, 6@6½; white clover, 8@8½. Beeswax. 28@30.
C. H W. Weber,
May 19. 2146 8 Central Ave., Cincinnati, Ohio.

Denver.—Demand for comb honey light. We quote No. 1 white comb honey, $3 00 per case of 24 sections; No. 2 comb honey, $2.50@$2.75. Choice white extracted alfalfa honey, 7½@8⅓ per lb. Beeswax wanted at 22@28c, according to color and cleanliness
Colorado Honey-Producers' Ass'n,
May 12. 1440 Market St., Denver, Col.

Philadelphia.—Very little doing in comb honey now. Not enough sales to fix any standard price. Extracted honey moving off in spurts but little demand. We quote amber, 6@6½; white, 6¾@7½. Beeswax, 31. We are producers of honey, and do not handle on commission. Wm. A. Selser,
May 20. 10 Vine St., Philadelphia, Pa.

Milwaukee.—A summer dullness is on the honey market for any grade or kind. Small fruits prevail to tempt the taste and please the appetite. Values are almost nominal, and we can quote fancy 1-lb. sections 16@17; A No. 1, 14@16; dark or amber, nominal, 8@13. extracted in bbls., kegs, and cans, white, 7½@9; dark, 6½@7; beeswax, 28@30. A. V. Bishop & Co.
May 21. 119 Buffalo St., Milwaukee, Wis.

New York.—Trade exceptionally quiet, and very little doing. Fancy stock is not plentiful and is sold at 14; a large supply of other grades on hand, which we are quoting at 11@13, according to quality, and in large lots make concessions from these prices. Extracted unusually quiet, and prices show a downward tendency along the line. Beeswax firm at 30@31.
Hildreth & Segelken,
May 21. 265-7 Greenwich St., New York City.

Toledo.—The prices on honey remain steady at last quotations. Fancy white comb, 17; A No. 1, 16; no demand for dark. Extracted white clover in barrels, 8; light amber, 7; dark, 6½. Beeswax, 28@30.
Griggs Brothers.
May 21. 214 Jackson Ave., Toledo, Ohio.

San Francisco.—Comb, 10@13. Extracted, water-white, 7; light amber, 6½; dark 5. Beeswax, 28.
May 12. E. B. Schaeffle, Murphys, Cal.

New York.—The honey market is quiet, with plenty of stock on hand. We quote extra fancy comb, 15; fancy, 13; No. 1, 10@12; buckwheat, 10. Extracted, California, 6½@8; Southern, 4½@5. Beeswax, 31, and wanted. Francis H. Leggett & Co.,
May 25. Franklin and Varick Sts., New York.

Detroit.—Not much honey in the market, and no great demand. Prices rule about the same; possibly a little less. Prices are as follows: A No. 1, 15@15½; No. 1 dark, 11½@12. Beeswax, 30@32.
May 8. M. H. Hunt & Son, Bell Branch, Mich.

Kansas City.—The supply of comb honey is about exhausted. The demand good. We quote as follows: fancy white comb, 24 sections, $3.50; No. 1 white comb, 24 sections, $3.40; No. 2 white and amber, $3 00@$3.25; extracted, white, per lb., 6@6½; amber, 5½. Beeswax, 25@30. C. C. Clemons & Co.,
May 28. 306 Grand Ave., Kansas City, Mo.

Buffalo.—Demand is light lately. Season for old honey is about over, and there will be little used until we get new. Fancy white comb, 14@15; A No. 1, 13@14; No. 1, 12½@13; No. 2, 11@12; No. 3, 10@11. Extr'd white, 6½@7; amber, 5½@6; dark. 5@5½. No. 1 dark comb, 11@12; No. 2 ditto, 10@11. Beeswax, 30@32.
W C. Townsend,
May 28. 178, 180 Perry St., Buffalo, N. Y.

Wanted.—Beeswax; highest market price paid. Write for price list.
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294, 296 Broadway, Milwaukee, Wis.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,
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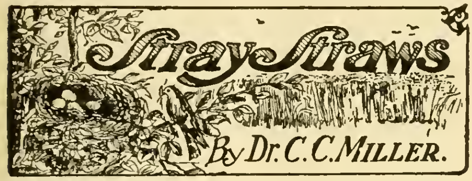


Stray Straws

By Dr. C. C. MILLER.

I OWN UP that I always thought the yellow color of Italians was in the horny covering itself, instead of that covering being transparent, as I learn on p. 423. Thanks, Mr. Editor.

"IF IT IS TRUE that a colony with a young queen will not swarm during the season she is reared," etc., p. 436. It isn't true. I counted on that, and one year gave young queens to all the colonies in one apiary. They swarmed.

I THINK those souvenir sections 2⅛×2⅛×1¼, at the Denver banquet, were produced by Vice-president Harris; and if I remember rightly he told me they could be produced at only about double the cost of ordinary sections.

COMBS that have been left out all winter in this locality need no looking after the next summer. Once in a great while the moth may lay in them if covered up; but if left without any cover I never knew them to be troubled. [Same here.—ED.]

I DOUBT as to that case, p. 443, meeting the requirements. Of course, the queen wouldn't lay in a comb filled with honey, and here was "a large swarm" with three old worker combs that "had a good lot of pollen and honey in them." If any thing of a harvest was coming in, wouldn't the bees at once fill any empty cells, giving the queen no chance in them?

I LOOKED over that wax-extractor, p. 440, and thought to myself, "Oh, dear! by the time I'd take the time and trouble to make one of them it would be more expensive than to buy a German, and probably wouldn't be as good. And it would take less skill to run the German without getting a cheese frozen on your hands." [Your conclusion for the average bee-keeper is a very correct one; but there are some, however, who have not the dollars, but have skill, tools, and an aching void to make things. The Salisbury extractor is intended for just such people as these.—ED.]

JAMES ROAT'S plan for making holes in tags, p. 445, is not so easy as making a hole by driving a nail into the tag, and not quite so secure. I don't want the possibility of a tag slipping off when hauling, and I can very quickly draw the nail and change to another hive. [Well, now, I guess you are right, after all. There is no use in going to the trouble of making something that is not as good as a simple nail.—ED.]

HIP, HIP, hip, hip, hurrah!

Illinois has a foul-brood law!—[This is good news indeed. There, do you see my hat sailing up in the air? Say, you could not have got this law through unless you had had a State organization back of it, and men to push the bill. We are going to try to get a similar measure through the Ohio legislature, and a good example is set us by Illinois, which will be worth much to us.—ED.]

THOSE STAPLES that fasten bottom-boards to hives, p. 430, I use diagonally instead of vertically, slanting in opposite directions, each one slanting toward the center of the hive at an angle of perhaps 25 degrees. A little more firm against sliding back or forward. If you don't happen to have staples, pieces of tin 3×½ inch answer very well with a heavy tack in each end. [Come to think, it is our practice to drive the staples diagonally; but I forgot to explain to our artist that little kink.—ED.]

IF YOU DON'T like that smoker-hook, p. 432, you can throw it away, just as I did years ago. I've often lost my hive-tool when it wasn't tied to me, but never a smoker. I don't want it hanging on the hive with the chance of smoking the bees automatically, even if it wasn't any in the way. [We send along a hook because a number call for it. It does no harm, and is very often a great convenience. Take my advice, and put the hook on as directed; and if you do not vote it is a great convenience I shall miss my guess.—ED.]

That trick of having pieces of section under cover for ventilation when hauling, p. 430, is quite a scheme. Still better is it to have bottom-boards two inches deep, giving all the ventilation necessary at the entrance. I use only two staples for fastening cover, one at each side. [But very few use bottom-boards having a space under the brood-frames two inches deep. I suspect the majority of bee-keepers would not use so much space. It is, therefore, necessary to provide a little ventilation at the top where the entrance is only one inch.—Ed.]

Try this: Take a little board and fasten on top, at each corner, a piece of section ⅛ thick. Take honey or molasses mixed with Paris green, and, if necessary, add enough flour so it can not possibly run, and put it on the board; then cover over with another board. Place this in, on, or about a hive, and ants and cockroaches can enjoy it without the possibility of a bee getting to it. [Your plan is a good one, but I did not suppose that cockroaches could go through a space only ⅛ in. wide. Mr. E. F. Phillips, referred to elsewhere, thinks they can. —Ed.]

Clipping, p. 429, is just as I do it, only, instead of holding the queen as in Fig. 3, I have thumb and finger each side of the thorax—perhaps a little less in the way of the scissors, especially as nowadays I use a pair of common pocket scissors with blades ¼ inch wide—handy to have always in the hip pocket; and after trying them thoroughly I really believe I like them better than lace scissors. [But, doctor, aren't the wings of the queen located more on the sides of the thorax than on the top? If you put the thumb under and the finger over, can you not make a closer cut with the scissors? Just try it and see if I am not right. —Ed.]

That bad smell in August, mentioned on p. 447, reminds me that some years about that time there has been a very offensive smell all through the apiary upon opening a hive, and others have reported the same. I don't know the cause, but it soon disappears — probably caused by some plant on which the bees were working. For the past two or three years we have been greatly annoyed in the home apiary by the presence of carrion plants, looking a good deal like toadstools, and making one end of the apiary smell just as if a dead animal were there. We have done a lot of digging, but they're hard to find, and as hard to get rid of as foul brood. [Carrion plants do not grow around here, for which I am thankful.—Ed.]

"Stand in front of the hive," when using a smoker, p. 432. I sit at the side—live longer that way. Whether the smoker is held in the right or left hand at the start depends upon which side of the hive, the hives being in pairs. When taking off the cover the smoker is oftener in the left hand. Where the smoker is set down depends on the wind, for a very little breeze will send the smoke over the hive if the smoker is in the right place for it, and I don't want the bees smoked by the wind. [You did not quote the whole of my sentence. I said, "Stand in front of the hive with the entrance at the left." My general practice is the same as yours, with the exception that I may stand or sit. If the smoker rests on the ground, the wind will but rarely make any trouble.—Ed.]

Some seem to think that, with the improvement of the tin binding, smokers should still have as stiff springs as ever, saying that, with the weaker spring, the hold is unreliable, the smoker almost slipping out of one's fingers, and that the smoker being made mostly for strong men should have a strong spring. Isn't that "slipping out of one's fingers" only seeming? There was no complaint that springs were not stiff enough before the adoption of the tin binding, and there is no question that the tin binding gives a much stronger hold. If the stiffness of the spring is reduced in proportion to the increased grip given by the binding, it can not slip out of the fingers any more than it did before, although the lighter grip necessary might at first make it seem so. The stiffness of the spring is to be proportioned to the weight of the smoker, not to the strength of the user. Might as well say that a stronger man should have heavier hives, covers, etc.

Ye editor seems to be getting a mania for going into little things, giving minute details as to how they are done, things that it would seem every one ought to know without being told. Good! It's a splendid mania. It's wonderful how we can go on year after year doing little things the wrong way if no one tells us better. I think I'm something of a genius in that direction. Years ago I used wide frames with eight sections, holding them out at arm's length to brush off the bees. It took me two years to learn to rest one end of the frame on the front of the hive, making the work only a fourth as hard. [I am interested in little things, because I am doing those little things myself. I am constantly watching for short cuts; and when I find some one has a better way than mine, I like to show it. I think no harm comes from illustrating the familiar kinks—familiar to us at least; for by so doing we may show new tricks to our brother-man.—Ed.]

I once saw a man putting on his right shoe, pulling the front strap with his left hand and the hind strap with his right hand. I laughed, and told him he had the wrong hands. But he was so pigeon-toed that his way was best for him. I thought of that when I looked at that picture of holding the smoker, p. 432. I may be pigeon-toed in my hands, but I hold the smoker just the other way — fingers on the side of the bellows next the stove. When walking, my hands hang naturally with palms backward, and to hold a smoker as in the picture would give my wrist a decided twist. [I do not know whether your arms are "pigeon-toed" or not; but it seems to me very awkward, at least, to hold the smoker with the fingers next to the smoker-cup. If you sit down, as you explained, the axis of your arm will be on the line with the top edge of the smoker-bellows. Then surely you want your thumb next to the fire-cup, and your fingers on the outside of the bellows. Now, then, suppose you straighten up; your smoker hanging as it were on a pivot between your thumb and fingers will always point toward the combs without twisting the wrist. The thumb next to the stove will come more natural if you try it that way. —Ed.]

I think — and perhaps "the wish is father to the thought"—that I may live to see the day when it will be cheaper to use an automobile than a horse for visiting out-apiaries. Can't you encourage us just a wee bit, Mr. Editor, by telling us that you can get a good auto to-day for a good deal less money than you could a few years ago? It would be just fine to be all through with the anxiety about horses scaring and being stung. And yet — and yet — I'm afraid I couldn't read most of the way on an auto as I do now. [I do not know that I can give you a great deal of encouragement that your ardent wish will be gratified. If you will eat lots of beefsteak, and do not work too hard, I think you will see the day when you can actually buy an automobile for the price you pay for a horse and buggy. Already the operating expense is far below that of a horse. We hear a great deal about expensive repairs, and they are expensive if one does not understand something of machinery. The process of simplifying the auto is going on all the time, and the repair item will grow less. Already there is a very good machine offered at retail for $375; quite a number at $550, and a host of them at $750. The cost of operating a gasoline-vehicle is about a half a cent a mile, of the run-about type. Figure up the mileage of your horse, cost of keeping, including the labor every day, or two or three times a day, whether you use it or not, and see where the figures are. When the automobile stops, the only expense is the interest on the investment, and repairs, and these last may or may not be a large item. It can lie idle six months. My auto is kept in a little room, and sometimes during bad weather it stands for days without any one going near it; and yet it is ready for me almost instantly when I am ready for that. For example, Mr. J. B. Hains, of queen-rearing fame, the man who got up the Hains feeder, was visiting us a few days ago. We suddenly discovered that his car was due in three or four minutes, half a mile away, and he had several awkward packages to carry with him. It did not occur to me for a moment that I owned an automobile. We sent a man along to help him, when it struck me I might as well get out my machine, which I did instanter. I caught up with him with his bundles, and rushed him up to the car in time to catch it. He was out of breath, and tired, close on to 70, and a run to catch the car would have been a severe tax on him. What a relief it was to him to be picked up and whirled up town in a jiffy!

Now, answering your question a little more specifically, the price of automobiles has dropped some $200 or $300, on run-abouts, this year, already. Millions of money are being poured into the industry. It will not be long before Yankee genius will be able to turn out a machine so cheaply that every one can have one who can afford a horse and buggy and a barn. No, throw the barn out of the account. But whether the automobile will be able to go over any roads that a horse and buggy can is doubtful. Good roads and automobiles *must* go hand in hand. There is no use in buying an automobile *unless* you can have better roads than where the mud is half axle-deep.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

Earthquakes, floods, volcanoes' blasts,
Drouths, and famine sore,
Massacres of men by men,
Now sadden every shore.

* * *

Albert Blume, a young farmer living near Clinton, Penn., had a hive of bees in his cellar. It became too damp in the cellar, and he moved the hive to his bedroom. The other morning the bees swarmed, and before Blume, who was clad only in his night-clothes, could escape he was stung about the head, face, and body.

* * *

The *Journal of Antiquities*, of Stuttgart, Germany, reports that, among other objects of curiosity found in the ruins of Pompeii, destroyed in the year 79, is a hive filled with honey so well preserved in the cells that the observer can hardly believe it is not fresh. Honey 1824 years old ought to be considered ripe enough, sure.

* * *

The *Leipzig Bee Journal* says the wounds caused by bee-stings should not be neglected. When a bee-man is stung he pulls the sting from the wound, and generally the event is forgotten. He often has no time for a nearer investigation and disinfection of the wound. Recently such neglect was nearly fatal in the case of a certain bee-keeper. A Mr. K., while hiving a swarm, was stung in the little finger of the right hand. As a general thing, after the removal of the sting, he allowed the trouble to pass out of mind; but in this case, after a short time, the finger swelled up, then the hand, then the forearm. Severe pain prevented him from sleeping, and his physician was obliged to adopt active measures. By neglecting to purge the wound thoroughly he brought on blood-poisoning.

* * *

E. T. Abbott says, in *Busy Bee:*

A writer in the *Drovers' Journal* advises placing empty hives in the bee-yard in the location where they are to remain, in advance of swarming time, so that the swarms may be hived without delay as soon as they leave their old quarters, and says that much trouble and often loss of bees may be averted by this timely precaution. It seems to us that this is likely to cause more loss of bees than any thing else. The hives should be kept in a cool shady place until you are ready to hive the swarm. A swarm placed in a hive that has been standing in the sun is almost sure to leave it. If you do not want your swarms to go to the woods, keep your hives in the shade until the bees are ready to occupy them.

Mr. Abbott says further:

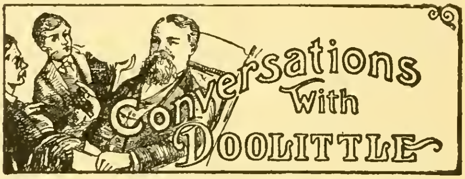
Every bee-yard should be equipped with a few drone and queen traps. They may seem quite costly, but even *one* can be so manipulated as to save a deal of trouble in hiving swarms. A swarm-catcher and a good long pole is another tool which will be found to be very valuable during May and June. These can be made by the bee-keeper, or bought of supply-dealers, as suits his fancy and his pocketbook.

* * *

Considerable excitement prevails in Germany among the bee-men over the statement of Mr. Freudenstein, who says, in the *New Bee Journal*, that nectar is nothing but sugary water, and, consequently, a bee-keeper has nothing to do but to give sugar to the bees in order to get a good crop of honey. It is said that this assertion will be warmly contested at the next apicultural congress at Strasburg, in July. This convention, by the way, will be a big thing, and attracts far more of the public attention there than any bee convention in this country. Some things connected with it we hardly consider conducive to good morals here. A French journal before me says, "A lottery of 50,000 tickets, at 50 pence each, will not only furnish the exposition committee the means of purchasing a large part of the objects represented, but it will afford the buyers of tickets a chance to secure some fine collections on exhibition." Overlooking all that, however, the program for the whole week is on a grand scale, backed by the government, and will be a notable event. The governor of Alsace-Lorraine will preside over the festivities. At the congress, in spite of his 93 years, Dr. Dzierzon will take part. In fact, the whole event is in his honor. He will speak on "the best hive." Those Europeans know nothing about Sunday as we understand it, but they know how to honor a great man when they find one. Langstroth's comparative obscurity in this country would have been unknown in Europe.

Since the above was in type, the following program has come to hand from Mr. J. Dennler, President of the Press Committee:

1. Dr. Dzierzon, Lowkowitz: How should a hive be constructed to meet all requirements of the bee-keeper?
2. Teacher Burckhardt, Weinsberg. The development of the brood in spring, on basis of periodical investigations in different hive systems. Thesis I: The brood development is more favorable in hives with ample dimensions than in those with small ones. Thesis: Steps ought to be taken to introduce larger dimensions generally; the indication, "normal measurement," should be changed.
3. Bassler, Prague. How have we to look at bee life in the light of modern science?
4. Rev. Klein, Enzheim. Feed paste and female bee-larvæ
5. Editor Reidenbach, Rebhorn. The latest in the battle with foul brood.
6. Langer, Prague. The recognition of bee honey with serum.
7. Editor Bohnenstengel, Busslar. The perambulating meeting and its reform.
8. Rev. Græbener, Hoffenheim. The education of the bee-keeper.
9. (?) In matters of the protection question regarding honey.



ABOUT QUEEN-REARING.

"Are you very busy to-day, Mr. Doolittle?"

"No more than usual at this time of the year, Mr. Jones. What can I do for you? It is always a busy time for the bee-keeper after the bees are well under way at brood-rearing."

"Yes, I supposed so. But I wanted to have a little talk with you about rearing queens. I want to raise some this summer, and raise them at just the time I wish them; but I see it is stated that queens reared by natural swarming are generally superior to those reared from eggs laid in worker-cells. Is this a claim beyond reasonable question? If so, how do our queen-breeders secure the thousands they send out?"

"It would be but reasonable to infer that a plan of queen-rearing which has brought vigorous healthy bees all the way from before Samson's time down to the present, in their native haunts, must produce queens that were very good, to say the least."

"That is all right; but do you actually think that an egg laid in a queen-cell is any better than an egg laid in a worker-cell?"

"To say that an egg laid in a queen-cell by the same queen is a better and more vitalized egg than one laid in a worker-cell, is something that very few, if any, would be ready to assume. From years of close observation I can not think that there is any difference in favor of the *egg*, no matter where it is laid, whether in queen, worker, or drone cells, providing said egg is properly fecundated."

"What is the difference then?"

"To my mind, the difference comes in the treatment of the innate life of that egg after it has come to the larval form. In natural swarming a larva intended for a queen from the time it first breaks its shell is nursed *all its larval life* with a fondness equal to any mother's fondness for her child; and in this nursing we have the part which plays for good or evil in the future queen."

"What do you mean by that emphasized, 'all its larval life'?"

"I mean that, from the very outset, the larva from an egg laid in a queen-cell by the mother queen is fed with royal food, and nursed for a queen; while with an egg laid in a worker-cell, the larva is fed and cared for a longer or shorter period, as a worker bee, and not for a queen."

"Yes, I see. But is the food given the queen larva at the outset different from that given the worker larva when it is first hatched from the egg?"

"I have never been able to discover that it was, and I think that the majority of our best bee-keepers of to-day believe that the food given all larvæ for the first 48 hours of their existence is the same."

"That being the case, then it would seem to me that the matter rested on the conditions rather than in the matter of food."

"That is the way I look at it; and if by any means we can secure a like condition for the just-hatched larva from an egg laid in a worker-cell, we can secure a like-conditioned queen."

"Do you think that the majority of queen-breeders secure these like conditions?"

"I do. I have not had the experience of some in receiving from queen-breeders queens of which 90 per cent turned out poor, or 'as worthless as so many house-flies' as one writer puts it. I have rarely received any thing but first-class queens in all I have purchased; and from these queens purchased, and from what I know of several of our queen-breeders, I have not a single doubt that thousands of the queens sent out by queen-breeders are every whit as good as those reared under natural swarming, for I am satisfied that the most of our queen-breeders to-day spare no pains to bring about an equally favorable condition to that under which natural swarming is conducted, while rearing their queens. Don't misunderstand me, and think there is no danger of producing poor queens, for there is. Much poorer queens than those reared under natural swarming can be produced, and will be, unless the work of queen-rearing is rightly done; and it was because that, in the infancy of the queen-rearing business, very little attention was paid to the condition of the colonies while they were feeding the embryo queens, that the subject of where the eggs were laid was advanced."

"Then you think I can raise good queens when I wish them, do you, even should I try it outside of the time when the bees are swarming?"

"Others have done this; and to say otherwise in your case would be to say that you were not equal to the general average of our queen-breeders."

"I suppose you do not wish to take time now to tell me all about how good queens can be reared at any time of the year?"

"I am always willing to do almost any thing to accommodate; but to take the time to tell you all about rearing good queens at this busy time of the year would not be reasonable, and would be out of the question in this department, even were I inclined to spare the time to do so. Nearly all of the bee-books treat on the subject of queen-rearing, and there are two or three books devoted especially to that branch of apiculture. Send to the publishers of GLEANINGS for their book list and then select such as seems good in your sight. After having read the book selected, if there is any thing you do not understand regarding queen-rearing, then I shall be glad to talk with you on the subject, trying to make it as plain as possible. But before parting, allow me to say that God placed man at the head of, and gave him control over, all animate nature, and thus it has come to pass that he has been enabled to equal, if not to improve, every thing which he has turned his hand to; and the rearing of queens is no exception to this rule. And if you will study up on this matter by careful reading, I have not the least doubt but you will succeed as well as and perhaps better than those who have come before you in the business."

Editorial
By E.R. Root.

OUR latest advices from California seem to indicate that the season is not going to be as prosperous there as was at first expected. But there will be enough honey to sweeten up the bee-keepers at the big convention that is to be held at Los Angeles. Do not forget to make your calculations to attend that grand meeting.

WE were threatened with a drouth during the fore part and middle of May; in fact, no rain fell from the 3d to the 22d; but on the latter date a good shower arrived just in time, and none too soon, to revive nature. A few light showers have followed since, up to to-day, the 26th, and the prospects for a good crop of clover were never better. Indeed, I never saw more white clover in the fields than now. The heavy rains of last season developed an enormous growth of the plant, and the beautiful little white heads are dotting the fields everywhere.

MISS LODEMIA BENNETT, of Bedford, O., died on the 16th of last April at the residence of J. B. Hains. Miss Bennett was a skillful queen-breeder, rearing queens at one time for the A. I. Root Co. and for Mr. Hains. As a sample of what she could or did do, she once grafted *forty-eight* Doolittle cell cups on one frame. They were *all* accepted without a miss, and *every one of them hatched a queen.* This breaks the record so far as I know.

She was also a successful honey-producer, and occupied a prominent position in our State Bee-keepers' Association meetings. She was twice elected Secretary of the Ohio State Bee-keepers' Association, and was secretary of the old defunct organization at the time of her death.

MISS LODEMIA BENNETT.

She was for many years a contributor to the Cleveland *Plaindealer*, one of the largest daily papers published in Ohio. She was an active and enthusiastic worker in the temperance and other reforms. A Bible student, she arranged many lessons therefrom for her co-workers in the temperance cause. Some years ago she used to write for the various bee-journals; but during latter years ill health compelled her to relinquish some of her activities.

THE NATIONAL CONVENTION AT LOS ANGELES; WHY BEE-KEEPERS SHOULD GO.

Los Angeles, Cal., is to be the place of the next meeting of the National Bee-keepers' Association. The time set is August 18—20. The Executive Committee, in deciding on this date and place, based their decision on the low railroad rates in force at that time on account of the encampment of the G. A. R. in San Francisco the same week.

It was suggested that we make the Santa Fe route the semi-official one of the bee-keepers. A tourist sleeping-car could be made up largely of bee-keepers, to start from Chicago in time to give a day's stop-off at the Grand Canyon — probably the most remarkable scenery of the kind the world affords. The train is then to go on to Los Angeles, fitly named the "City of the Angels," one of the most delightful cities I have ever visited. It is not delightful because of its architecture, but because of the surrounding scenery and its bracing climate. Cool evenings and warm days make living there most enjoyable.

Board and lodging can be secured at very reasonable rates. In one of the good hotels of the city I secured a room at 25 cts. a night, and board at 25 cents a meal, and that the very best. There were other places where I could have had accommodations still cheaper. The bee-keepers there are a most hospitable set of fellows, and I shall not forget some of the pleasant hours spent with some of them.

This is a good year for California; and if one desires to see the real extent of bee-keeping possibilities in one of the fairest climes the world affords, let him take this trip. Do not go simply because you may get enough at the convention to pay you, but because your horizon of life will be enlarged, and because, years afterward, you can live over again (in memory) one of the most delightful trips you ever took. Just think of it! You can take a car in the morning in Los Angeles, and go to the coast and take a sea-bath. You can then come back to Los Angeles, and eat strawberries and pick roses. In the afternoon you can go to Pasadena, a little city that is even more beautiful and more perfectly laid out than Los Angeles, where the great wealth of the East has been poured. Indeed, it is almost a heaven on earth. An hour's ride will take you up into the mountains where you can get above the clouds — yes, may take a sleighride and enjoy a good snowballing. Just think of it! a sea-bath in the morning, strawberries and roses at noon, a sleighride above the clouds, and snowballing, *all in one day!* Talk about going "from the sublime to the ridiculous"! This beats any thing for a rapid change of season and scenery. While this is possible in the spring of the year, it may not be possible in August.

But one of the most thrilling trolley-rides (dangerously near precipices) that can be imagned is to take an electric car and actually glide above the clouds and look down upon the valley spread out like a panorama thousands of feet below. One can see the ocean, and the cities of Pasadena and Los Angeles, and all the small outlying towns, with their fine orange-groves and all the beautiful luxuriance of a tropical climate. In short, he can see typical Southern California.

Bee-keepers, if you fail to take in a trip of this kind (and it is the opportunity of a lifetime) you will be missing one of life's greatest pleasures.

The round trip from Chicago is $50.00. Rates in the tourist sleeper will be very low. I do not remember just now what they are; but particulars can be obtained, I think, by applying to Sec'y G. W. York, 144 Erie St., Chicago.

NEW MEN ON THE BOARD OF DIRECTORS OF THE NATIONAL.

MR. W. A. SELSER, of Philadelphia, Pa., the expert honey analyist and chemist, and Mr. Udo Toepperwein, of San Antonio, Texas, one of the leading bee-keepers of that section, have been appointed on the Board of Directors of the National Bee-keepers' Association, to fill the vacancy caused by the death of T. G. Newman and the resignation of A. I. Root. No better men could have been selected. A. I. Root has felt for some time that younger men, more in touch with the bees, and more interested in the work of the Association, should be on the Board; and with that end in view he sent in his resignation, to take effect as soon as his successor should be appointed.

THE DROUTH IN THE EAST.

THERE has been a protracted drouth in some sections of the East—notably in New York and New England. The following letter from a correspondent in New York will explain itself:

> *Mr. E. R. Root:*—This is our 45th day without rain—the longest rainless period since 1791. Clear and cold to-day, May 29. Honey prospects, none. Clover is all dried up, and bees barely living; soil too dry to prepare for buckwheat. A few scattering swarms during fruit-bloom. Unless rain comes soon we must feed or move. J. D. BIXBY.
>
> Guilderland Center, N. Y.

The condition of Mr. Bixby's locality seems to be more severe than in most places; but at all events, the rain has held off west as well as east for such a length of time that the amount of clover honey will probably be cut down very considerably. But the drouth is broken now, east as well as west. The fearful storms that have prevailed in the West seem to be working eastward; and if it is not too late there will be a fair crop of clover honey in some localities. Clover has not been injured in Ohio.

"PARTHENOGENESIS" AND ITS UNSOLVED PROBLEMS UNDER SCIENTIFIC INVESTIGATION AT MEDINA.

THE Home of the Honey-bees is especially favored in having with us Mr. E. F. Phillips, of the University of Pennsylvania, a thoroughly trained student in zoology, to work out a little more fully the problem of parthenogenesis, for there are still some unsolved points about it.

He has studied the subject of parthenogenesis more thoroughly in relation to other insects, and bees in particular, than perhaps any other man in the country. He comes highly recommended, bringing with him the best apparatus that the University affords, for pursuing his scientific investigations. We, in turn, have placed at his disposal bees, nuclei, observatory hives, and told our men to give him every assistance possible. He is taking nothing for granted,' but takes a nucleus hive and sits down and watches the bees hours at a time. That you may know a little more about him, and something of the importance of his work, I am placing before you an extract from a letter from Dr. E. G. Conklin, Professor of Zoology in the University of Pennsylvania. He writes:

> *Mr. E. R. Root:*—Permit me to recommend to your favor Mr. E. F. Phillips, one of my graduate students, and the holder of our Fellowship in Biology for the coming year. Mr. Phillips has undertaken, at my suggestion, to go over the whole subject of parthenogenesis in the honey-bee in the light of new theories and observations, eliminating, if possible, certain sources of error which are found in the works of the older students of this subject, and considering many features of the problem from new points of view. Mr. Phillips is a clear-headed, well-trained man, and I consider it highly probable that his work will yield valuable results He proposes to offer this work, if it should result favorably, as his Ph. D. Thesis, in which case it will be published in full.
>
> Philadelphia, April 20. E. G. CONKLIN.

Mr. Phillips is desirous of securing some drone-laying queens; but fertile workers caught in the act would be regarded by him as a special prize. In order to work out this problem of parthenogensis he needs material. While he is drawing on our 400 or 500 colonies, yet he needs more than our bees at present supply. Fertile workers, virgin queens that lay drone eggs, drone-laying queens—any thing in this line—will be most thankfully received. Any of our readers who have any thing of this nature will please report to me immediately, and I will let you know whether it is something he can use in his scientific investigations.

MOVING BEES TO OUR OUTYARDS.

As many of our readers know, we have something like 1000 colonies, all told, 500 of which are in Cuba, and 500 in and about Medina. To keep them secure from the depredations of thieves or miscreants bent on mischief, the bees at our outyards are hauled home in the fall. Early in the spring or during the early part of apple-bloom they are taken back. The illustration on page 495 shows one of our loads of bees going to the Harrington yard, about 1¾ miles directly south of the home yards, where it will be run primarily for honey and for testing certain of our breeders for honey. Those queens that show up the best out of our selected stock will be reservedfor the next season for queen-mothers for the great bulk of our queens. Last year one breeder having only a nucleus to start with filled four stories of extracting-combs with honey and bees. Considering the start that she had, she so far outstripped the other colonies that I marked on the hive-cover, "$50 queen. E. R. R. says do not sell."

In the illustration there are 54 colonies, the great bulk of which are in one-story chaff hives. There are a few jumbos—in fact, one is seen close to the driver's feet. Mr. Bowman, the teamster, although not a bee-keeper, is not afraid to take hold and help in the bee-yard when necessary. He is of that stocky muscular build that enables him to lift hives to and from the wagon with no very great effort. Mr. G. W. Phillips, the head man of the apiary, recently from Jamaica, stands in the midst of the load. On this occasion we took the 54 colonies, set them under some large apple-trees in groups of four and five, a little south of the farmhouse where myself and wife expect to spend the summer. As I go back and forth I can look after the bees and enjoy the fun and the work of getting a crop of honey as well as testing for breeders, at the same time gather fresh facts from experience.

The Harrington location is our best. We own quite an extensive piece of woods made up of old basswoods just adjoining, that have never been cut out. The farming country round about is rich and productive; and I have noticed that the bees in this yard will gather honey, oftentimes, when those in others will be robbing; so if there is any honey to be had, this place is eminently fitted to test out honey-queens.

Our Mr. Bowman, the teamster, and Mr. Phillips, after disposing of their load at the yard, as shown in the engraving, went on about two miles further and picked up another yard of bees which I had previously visited with the automobile, and purchased. An old farmer had become tired of the business, and wanted to sell out. Now we have a clean territory all to ourselves.

Our basswood yard, a mile and a half north of us, will be devoted mainly to queen-rearing. Instead of having 400 nuclei *all in one yard*, all requiring to be fed at times, we now have them in two yards where the bees will have more opportunity to gather honey from natural sources. While we can get good queens by feeding, it is a great deal more work, and more expensive. A larger percentage of the queens can be mated successfully when honey is coming in than when the individual nuclei have to be fed.

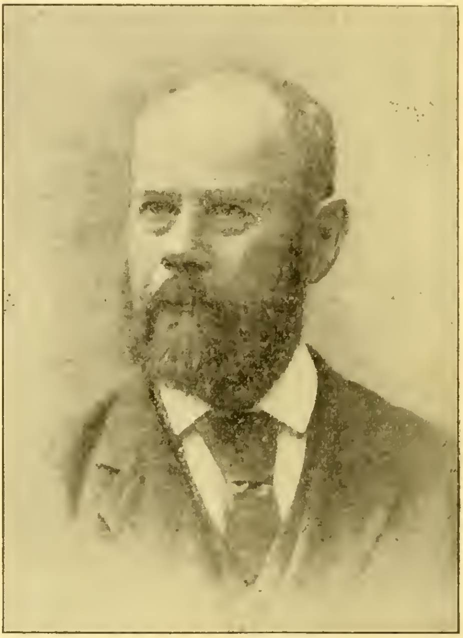
DEATH OF JOHN NEBEL.

ANOTHER one of our old veterans passes off the field. This time it is our friend John Nebel, familiarly known to bee-keepers who have bought supplies of him for many years at High Hill, Mo. He was a man of strict integrity, well liked, and loved by all who knew him. We have obtained a brief biographical sketch from a member of the family, and take pleasure in presenting it herewith:

John Nebel, aged 69 years and 6 months, died very suddenly of rheumatism of the heart at his home in High Hill, Mo., May 5, 1903. He was a prominent and highly respected citizen of High Hill, the leading lumber-dealer, also conducting a lumber-yard in Jonesburg, Mo.

He dealt extensively in bees and bee-keepers' supplies, being an active member of the North American Bee-keepers' Association since its organization.

Mr. Nebel first commenced with bees on a small scale in 1870. In 1880 he went into the business in an extensive way, uniting the supply department with it in 1883. He had at times as many as 300 colonies. He took 16 000 lbs. of honey in 1886 from 123 colonies, spring count, and increased to 183 that year, besides selling many queens. April 22d, 1903, he went to Moberly, where he assisted in organizing the Missouri Bee-keepers' Association, being elected its president. He was taken sick while at Moberly. On his return home he took to his bed where he remained until his death. He ate breakfast on the morning of May 5, after which he lay down to sleep from which he never awoke. The funeral services took place at Mount Pleasant Cemetery, near High Hill, conducted by his son-in-law, G. K. Keler, under the auspices of the A. F. and A M of Jonesburg.



JOHN NEBEL.

High Hill has lost a good citizen ; the bee-keeping fraternity a friend ; a wife, a kind husband ; and four children a loving father.

A friend who knew Mr. Nebel well has also written this of him:

I have been acquainted with Mr. Nebel but a short time, yet he seemed like a father to me. I began trading with him in 1900, and have bought all my supplies of him ever since ; and last year he sold a number of queens for me which I saved up from swarming-cells during the unprecedented display of the swarming propensity of my bees. I know he was a good man —genial and kind in all his dealings, and was sociable and ready at all times to give good advice No one knows how I appreciated him. I can now appreciate more than ever the mournful statements of the journals regarding the veterans. Our Missouri State Bee-keepers' Association had just sprung up, and we had elected Mr. Nebel as president for the ensuing year. There was not a dissenting vote cast. Every member present voted for him at the convention ; and, besides, I had over forty votes for him through the mails from parties who could not attend. W. T. CARY,

Sec. Missouri State Bee-keepers' Association.

TRADE NOTES

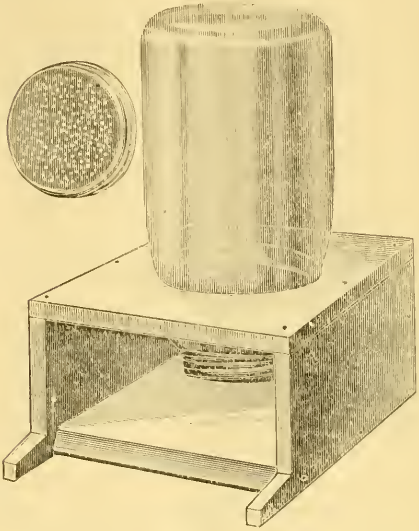
BY E. R. ROOT.

JUMBO EXTRACTORS DRIVEN BY POWER.

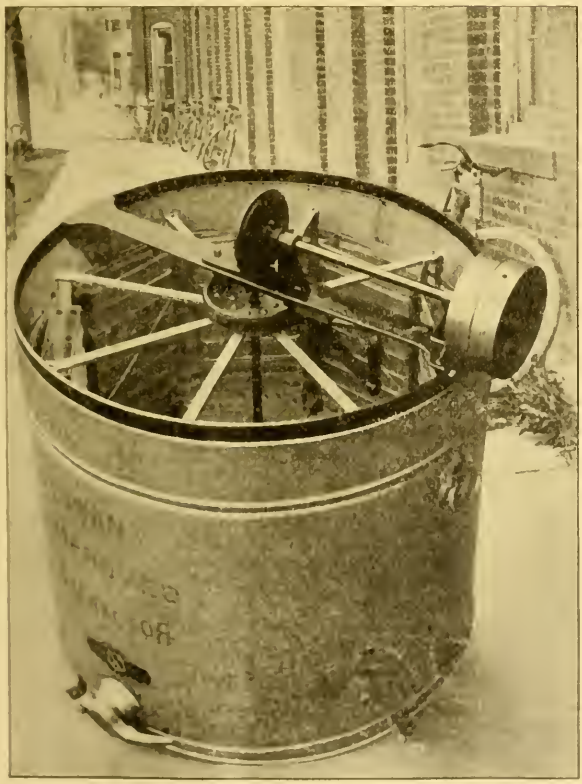
We are now building jumbo machines of eight-frame capacity, geared up for power. The illustration herewith shows one of the machines. It has the regular Cowan principle for reversing, and is built strong in every way. As will be noted by the handle near the pulleys, it has a powerful street-car band brake, so that the machine can be stopped almost instantly, even from a high rate of speed. This particular extractor is designed to be driven by means of a gasoline-engine. We have also made arrangements whereby these engines can be supplied with the machines. Gasoline power is much cheaper than any thing else. The first cost is much less, so also the cost of operating.

THE IMPROVED BOARDMAN FEEDER.

Very recently we made an improvement on what is known as the Boardman entrance feeder. The old type of this feeder was on the Hains atmospheric principle. This at times was unsatisfactory for the reason that, if the can of syrup were out of plumb, the syrup would run over and leak. We finally, at considerable expense, constructed a die that would make exceedingly small holes in the cap of an ordinary Mason jar, carrying out in effect the atmospheric principle first applied to bee-feeders by the veteran E. France, father of N. E. France, General Manager of the National Bee-keepers' Association. These small perforations in the cap let out the feed only fast enough for the use of the bees. If the syrup is made properly there will be no leakage. The advantage of this feeder is that it can be placed at the entrance of any hive; and as one goes down the hive-alleyways he can determine how fast the bees are taking feed, and whether the feeders are empty. With a wheelbarrow-load of filled cans he can very easily remove the empty ones and put filled ones in their stead. For stimulative feeding in spring, there is nothing better, and especially for a queen-breeder. We use it regularly on our queen-rearing hives to keep up the general prosperity of the colony, for to get large well-developed cells — that is, providing honey is not coming in from natural sources — the colony must be highly prosperous. When feeding nuclei we



THE BOARDMAN FEEDER WITH NEW PERFORATED CAP.



A JUMBO COWAN POWER-DRIVEN EXTRACTOR.

take a Mason jar and put the top through a hole of the right size in a thin super-cover. This puts the feed directly over the cluster. An upper story or cap is then put on top of the hive; and when the feed is exhausted, all one has to do is to lift off the cap and put a filled can in its place.

Your dealer will be prepared to furnish these caps to fit any Mason jar. This makes the expense of this kind of feeder merely nominal; for every family is supposed to have, in the spring at least, a large supply of empty Mason jars that can be utilized for this purpose.

GENERAL
CORRESPONDENCE.

SHALLOW HIVES.

A Bit of Experience.

BY E. N. WOODWARD.

I am wondering what will be the result of all this talk about shaken swarms, shallow hives, narrow starters, full sheets of foundation, and all the confusing problems of this new system of forced swarming. I suppose that many bee-keepers are planning and expecting great success along this line the coming summer. I don't wish to enter a protest against any system of management that has proved to be a success in the hands of a skillful bee-keeper; but I should like to speak a word of caution to the inexperienced, for I know how apt we are to follow some new idea or some new theory, without knowing exactly where we are being led or what the result may be. I believe that forced swarming (so called) is a move in the right direction if a person has a large number of colonies, and wishes to produce comb honey; but we must keep close to nature, otherwise we are making a serious mistake. To prove this, I wish to bring in my own experience.

About five years ago an article in one of the bee-journals led me to form the plan of hiving all of my new swarms into shallow hive, with foundation; and the plan looked so plausible to me that I constructed quite a number of such hives, having them ready for my first swarms, which usually come soon after white clover comes into bloom; and so, with thoughts of an abundant harvest, and with visions of a long row of supers towering high, I hived my best swarms into these shallow hives, placing double supers with 48 sections on top, with queen-excluder, and then waited for results.

Well, I was having my way so far; but what did the bees say about it, Dr. Miller? In the first place, they held an indignation meeting, and then for two successive days swarmed out, losing valuable time when white clover was in full bloom; and then they loafed awhile, and finally began to dwindle; and when the honey season was over I had a few weak colonies and very little honey.

I very soon began to apprehend that I was making a mistake, and so I hived the rest of my swarms into regular Dovetailed hives, full depth, contracted with dummies to correspond to the size of the swarm.

Shall we consult the bees again? Their actions speak louder than words, for they immediately went to work with a vim, with no thoughts of swarming out, and I soon began to tier them up; and at the end of the season many of my new swarms hived upon the deeper frame gave me 100 lbs. of as fine honey as was ever placed upon the market.

The conclusion that I came to is this: That a shallow frame and hive is not in harmony with the natural instinct of the bee; and, forced out of their natural form and condition, they fail to do good work; but when placed in a hive which gives them room to cluster in natural form, and when their new home is made agreeable to them, they very seldom swarm out, but will very soon adjust themselves to their new surroundings, and the whole machinery of the hive is set in motion. More than all this, the surplus warmth and energy from this more nearly perfect form or cluster flows up into the super above, and an impulse is given that sends the busy workers out into the field, and the hum of contentment and industry is heard from every side, the occupant of the hive being a better judge than we when our opinion is formed from a standpoint of theory. I am pleading for the depth of the regular Langstroth hive in which to place our new swarms. We may contract, if we choose, down to five or six frames, according to the size of the swarms and the prospective honey harvest.

So the thought comes to me, "Can we afford to place our prime swarms in a shallow hive, shut down in many cases with a queen-excluder, compelling them to begin housekeeping in such a cramped-up place that they must show their resentment by swarming out again and again, and perhaps dwindling until they are almost worthless, and that, too, in the midst of a white-clover yield of honey?" This has been my experience with shallow hives. I hope others have been more successful. If so, I should be glad to know it. I for one want the regular Dovetailed hive with full sheets of foundation; for with that management I am sure to get a crop of honey if it is in the field to gather.

Hillsdale, Mich.

[Your experience hardly proves much. There are thousands of sectional brood-chamber hives in use; and I do not remember seeing a report similar to yours before. There were some other outside conditions that would account for your experience.

The mere difference in the depth of brood-chamber (only 2 inches in this case) could not account for the phenomena you describe. If you were to repeat the experiment it is very likely you would get just the opposite in results.—Ed.]

THE HOFFMAN FRAME CONDEMNED FOR EXTRACTING.

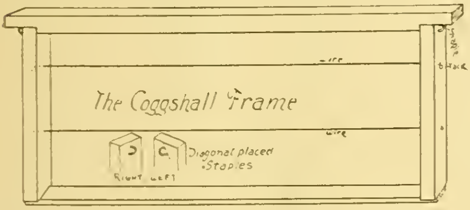
Too Much Trouble from the Ears or Projections Breaking Off.

BY W. L. COGGSHALL.

After reading what Mr. Alpine McGregor and Dr. C. C. Miller and the Editor say on page 243, March 15th Gleanings, I was prompted to say a word.

The Hoffman frame has its advantages in moving bees—they are always fast, and always fast when you want them loose, and they are a weak frame for extracting. I have one apiary with Hoffman frames; and every time we empty the honey, 10 to 15 of the top-bars are broken off; one end of the top-bar is split three or four inches, and the support is gone. You cut the *ears* off, and that weakens the frame very much; so they will soon give out.

Dr. Miller says he can handle spaced frames faster than those that are not spaced, and that for rapid work a spaced frame is better. I beg to differ with the doctor. When a man tries to loosen up a Hoffman frame where the bees have been in two years, and pry off the top-bar, which I have done repeatedly, and then not get out the frame—well, I won't say.



For the good of the order I will describe the "Coggshall" frame—one that you can drop 3 or 4 inches, full of honey, and the top-bar will not break off. Top-bar is 1 in. × ⅝ (1 1/16 × ⅝ is still better to prevent burr-combs); end, ⅞ × ½ inch; bottom, ¾ × ¼. Rabbet the top-bar out as shown. Nail with six-penny nails in the top-bar; three-p. in the bottom-bar; put a wire staple in each lower end, and let it stick out ¼ inch. You can shake bees without killing them. It is not necessary to have a ⅞-inch top-bar. The width is what prevents burr-combs in New York.

WIRING FRAMES.

Take a thin board three or four inches longer than twice the length of the wire for wiring the frame. Put a mitten or glove on the right hand after fixing the spool of wire, so it will run off the wire. Then wind on the board 160 or more times around lengthwise. Tie with string or wire around the shears or knife and cut the wires at one end. Hang in a handy place, and pull one wire out and put it in the frame. I put only two strands across the frame, putting a tack in the end-bar, and winding the wire around, and driving down the tack, cutting off the surplus wire, if any.

West Groton, N. Y.

[As *you* are operating, friend Coggshall, it is possible that the Hoffman frame is not as well adapted to your needs as some other; but did I not see you work on the "lightning" order—that is, didn't I see you kick the supers off the hives and rip the frames out? Then you extract with the frames just as they hang in the hive. In your rapid way of working, the frames are picked up and often *dropped* into the comb-pockets, with the result that the force of the dropping comes on the ears of the frames. I do not mean to say that your method is not the proper one; but I have been in dozens of extracting-yards where no trouble at all arose from the breaking of the projections or ears. Then the frames should not be pried at the ears. They are strong enough for all ordinary support, but of course they will not stand prying. In the great majority of localities I have been in, there is no trouble in separating Hoffman frames. Hooper Bros. of Jamaica extract hundreds of thousands of pounds of honey from Hoffman frames, and they will have no other. We have tried to introduce the metal-spaced frames, but our customers insist that they want the Hoffman instead. —Ed.]

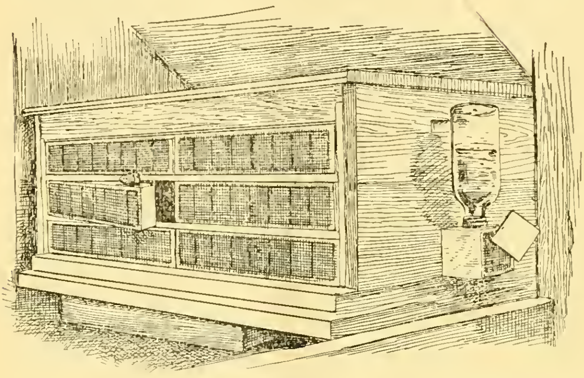
A PEEP INTO MY BEE-HOUSE.

A Home-made Affair.

BY SWARTHMORE.

The building is about 5×8 feet, ground floor, and ten feet to the tip of the roof. It has a wide window at one end and a broad door at the other. The door is provided with glass but does not open, for of all the nuisances about a bee-house an opening in the door is the very worst imaginable to me. Both windows are provided with balance-shades, such as are used in my home. These shades are green; and, when drawn, the operating-room is as dark as a pocket. I make a distinction between "honey-house" and "operating-room." A honey-house is totally unfit for an operating-room, because of the everlasting lumber and clutter, to say nothing about the sticky mess from the extractor, combs about, and the danger of admitting bothersome robbers on all occasions. I want my operating-room clean and clear, free of honey, combs, bees, and mess. But I digress. In my window is a tilting pane which can be quickly thrown open to rid the house of bees after an operation. This window attracts every bee because it is the only light spot in the house at the time; and when I have finished my work I can turn the rascals outside in a twinkling. They like it, and so do I.

The floor of my operating-room is carpeted with linoleum, the walls and ceiling are papered in buff, with a wainscoating of bright red. There is a rug or two to stand upon. I even have neat Swiss drapery at the window, for adjusting the strength of the light more than any thing else; but it makes an attractive appearance as well. There are some photographs of apiarian subjects on the walls, and some decorative useful articles about. At certain seasons I have a growing plant or two, because I like them always near me. The lighting arrangement at the present time (I frequently shift cells at night) is an oil-lamp, but I expect to pipe for gas. The heating stove is oil too, but of course that will be gas when the change is made. Water I catch from the roof, and always have a generous supply.



"I REACH DOWN UNDER THE BENCH AND DRAW NURSERIES FILLED WITH VIRGIN QUEENS."

Across the window end of the house is the work-bench, and along the wall at the right hand are several shelves for holding the numerous articles used in queen-rearing. My tools are all at hand without moving from the bench. Along the side, directly beneath the shelves, is a long, low, removable bench for holding the cell-starting chambers. Beneath this bench is a slatted ventilator which can be opened and closed at will, and which does not admit light; and above this, on the opposite side, is a wide screen-covered opening into the extracting-room, densely shaded, which can also be opened and closed at will. Thus I can regulate my room to perfect darkness, and at the same time supply ample ventilation.

Under the benches are several booming colonies which are used exclusively for cell-construction, and there is also nursery capacity within these hives for over 200 virgin queens. Upon the workbench, close to my right arm, are the miniature hives containing the breeding-queens; and at the entrance to the house is a glass hive to show the quality of the queens and bees reared within. All the woodwork inside the house is stained walnut, in dull finish, and the hives are painted pure white, making a very pleasing contrast, and, taken as a whole, is pronounced "an artistic scheme."

The outside of the house is painted dark olive, with white trimmings. I have a wide awning on the two sunny sides. A vine is fast covering the front and rear. In summer I have palms under the awning and a bench or two for visitors to rest upon. When the sun gets around I can lower a flap for a screen—"it is all so comfortable, so pretty!"

Now for the convenience of the thing: When I wish to start cells I go early to the hives, before the sun is high, and take up my bees. They are carried directly to the operating-room and placed upon the low bench I have mentioned. It is so cool and comfortable inside that the bees do not thrash as they would outside in the sun and broad daylight. When it has come time to give them the larvæ I go inside, open the breeding-hive, draw what eggs are needed, and place them directly with the bees set ready to receive them. All is close at hand; I do not have to stir from my tracks. Rain or shine, cold or blow, cell-starting proceeds, for I am under cover, and so are my bees. Furthermore, temperature inside can be regulated to suit the operation. In early spring I have a summer heat within my house, though it be but 40 outside. Thus I can make an early start.

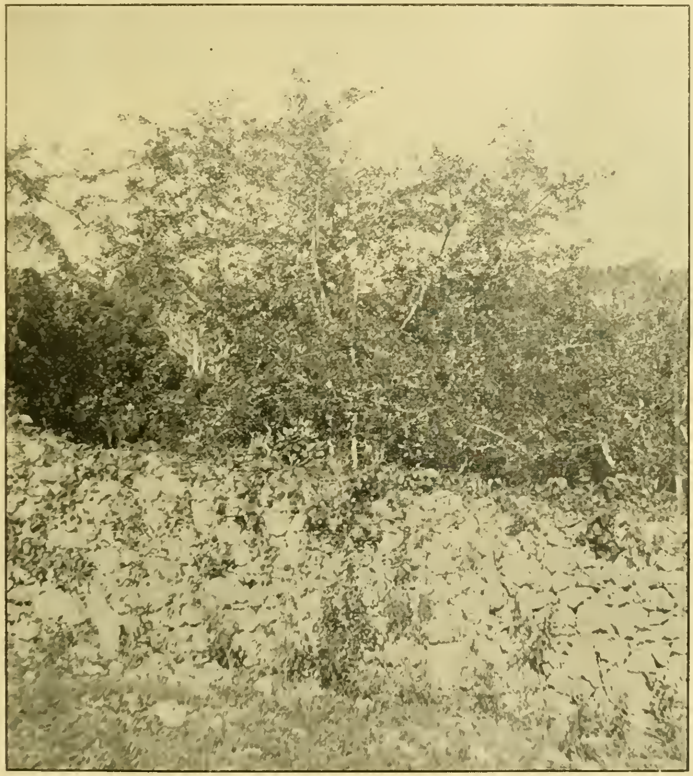
When the cells are fairly under way I simply draw them and place them with the nursing colonies under the bench—no opening of hives. Simply raise the covers and peg them in—that is all. The queenless bees are then divided into small nuclei for mating the young queens, by this time hatching in large numbers, as explained in GLEANINGS, Jan. 1. I simply reach up to the shelves and take down the forming-screens, admit light to the room, and out will pour the bees into the screens. None are lost, for none can escape the confinement. The arrangement is quite as pretty as the house in which the deed is done. Along the lower shelf are arranged the mating-boxes; and as the screens are filled they are immediately attached to the boxes; and when all are supplied with their quota of bees I reach down under the bench and draw nurseries filled with virgin queens, and introduce one to each box. All this work is done under cover, mind you, and without moving from my tracks. If I were a lazy man I would seat myself upon a stool and be done with it.

BEE-KEEPING IN JAMAICA.

The Home of Logwood.

BY LESLIE ALEXANDER.

Mr. Root:—As you have recently been turning your attention to things West Indian, notably Cuban bee-keeping, I have no doubt that a few notes on bee keeping in Jamaica, with a few typical illustrations, may interest the vast army of brother bee-keepers in the States. I am by no means a professional—only a humble amateur running an apiary of 120 colonies. My apiary is situated at Malvern, a very large pimento property, in the wonderful health-giving Santa Cruz Mountains, at an elevation of 2300 feet. It is only a small nook in the logwood region, the honey-plant par excellence of the tropics.

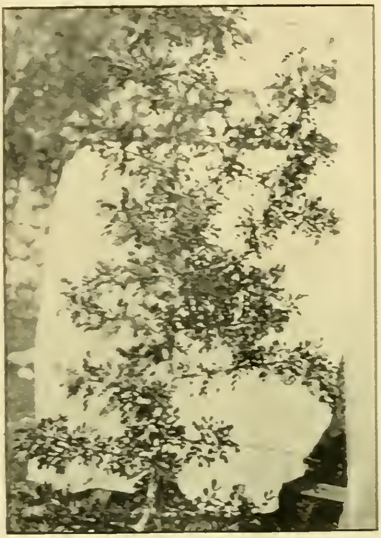


LOGWOOD-TREE IN FULL BLOOM.

Having been stricken down several years ago with pulmonary complaint I had to abandon work on the plains, and, upon the advice of my physicians, I came here—the climate being considered one of the best in the world for all pulmonary troubles, owing to the total absence of humidity, due to the fact that the entire mountain-range runs parallel to the sea. Our average maximum temperature is 78°, and our average minimum 73.

A little over two years ago I started bee-keeping as an experiment with six colonies of Italian bees. In a short time I grew to love the work; and when, at the end of the first twelve months, I found I had extracted 1680 lbs. from barely 15 strong colonies, I was not only proud, but I resolved to stick to the business. From 45 strong colonies this year (by strong I mean the full force of 70,000 bees and upward, according to Doolittle's average) I have taken off 4900 lbs. I run the apiary unassisted, save temporary aid at extracting-time; and what with the outdoor work, and the bracing climate, I have hardly known an ache these three years past. This speaks volumes for the climate and the occupation.

September brings with it a brief logwood bloom, which is the forerunner of the main honey-flow, never later than the middle of November in this locality. The September flow, following so closely upon the perishing or dwindling season, July and August, gives the bees a wonderful stimulus—not enough to put on supers, yet sufficient to crowd the brood-chambers when the colonies cast fine swarms—I should say an average of about 20 per cent. I find that the September swarms are the first colonies to be supered when the main honey-flow is on. I ply all weak colonies now with comb foundation, or empty combs if any are on hand. After the real rainy seasons in October are over, should I still find myself with any weak colonies (not having time to build up) I begin to unite. This puts every thing in shape for the grand burst of logwood bloom in November. And what grander sight than miles upon miles of gold? It is logwood, logwood everywhere!



BRANCH OF LOGWOOD-TREE, SHOWING BLOSSOMS.

Now, the real flow along the plains and low-lying country does not begin until the middle of December, lasting sometimes until the end of January. If we have a few showers in February or early in March, every thing is gold again, followed closely, often simultaneously, by a heavy mango bloom lasting about five weeks. April may, generally speaking, be considered our actual swarming season. In this month the giant May-pole or corotce, pimento, and coffee are in bloom; and what with the nectar from the ever-present Spanish needle, if the bees are idle, if queens are not prolific, and if your colonies are not literally bubbling over with bees, it is no fault of nature. I am speaking strictly for my locality, as I know the conditions are somewhat different in other places. In some of the low-lying districts, where logwood is the only honey-plant, stimulating has to be practiced to a much greater extent than in the mountains, where the variety is greater.

I use nothing but the standard ten-frame hives, all locally made. I make the bodies and bottoms of empty kerosene-oil boxes, the covers of empty packing-cases. This style of hive is extensively used by bee-keepers in Jamaica. Five empty beer-bottles sunk into the ground, neck downward, and made level, make an excellent stand, and can bear five supers of honey, about 300 lbs. weight. I keep 12 three frame nuclei to every 50 colonies, in which I rear queens to meet the demands of my apiary. I use no scientific methods in this department. A square inch of comb with some three-day-old larvæ, grafted or slipped between the combs, does the job. I have breeding queens from The A. I. Root Co. and G. M. Doolittle. The Root Co.'s queens, from their leather-colored strain of Italians, are all round fine, the bees from which know how to roll in the honey; and in times of great scarcity all colonies with their progeny keep healthy and strong. I strengthen my weak colonies by swapping their positions with strong ones. Nuclei are also formed in this way, giving each one in advance a frame of larvæ. This plan helps to discourage swarming in strong colonies. The system of "swapping" hives is an admirable one in the case of laying workers. After removal you have only to give the colony with the laying worker a frame of larvæ, and the new force of bees soon starts queen-cells.

I have already told you how I take swarms—see Gleanings, Jan. 15, 1902. When not desiring increase, two or three swarms are huddled into the same hive. I never could see the advantage of clipping my queens, and so leave it severely alone. When I rise to the rank of being owner of 500 colonies, and have an assistant (must be a specialist at lifting heavy weights) I shall consider the matter.

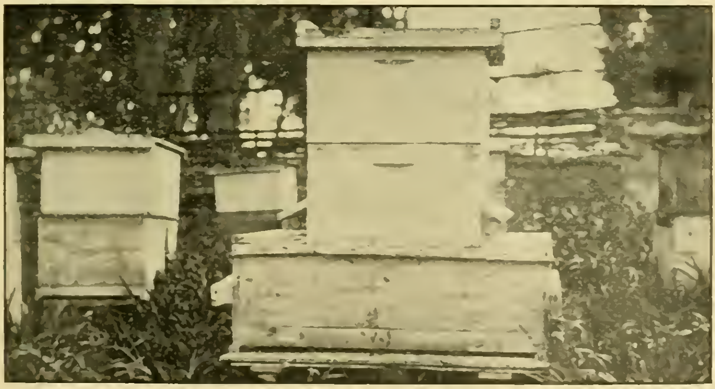
I have a rather novel plan in dealing with robbing. The entire colony being robbed is banked with hay which is freely sprinkled with a brush dipped in whitewash containing about a tablespoonful of turpentine. Every robber is branded "white," and I can then detect the colony from which the robbers are issuing, when the entrance is forthwith closed. No matter how thickly the hay is placed around a colony, the bees get ample ventilation, and at night the covering may be removed. The whitewashing is, of course, superior to dusting with flour; and since it saturates the hay, the bees get disgusted as soon as their bodies get foul and sticky, the smell of the turpentine adding to their disgust.

There being no local market for it, very little comb honey is produced in Jamaica—all run for extracted. A good many bee-keepers preserve one season's empty combs for supering colonies the next honey-flow. Now, I husband them for my swarms, and since the swarming season follows so closely on the honey season, the combs have no time to generate moth-worms, which abound here. Honey (I am speaking of logwood) stored in new combs is bound to be white; hence I am careful not to give dark combs in supers when the bloom is on. Too much care can not be exercised in this respect, as honey is so easily discolored or darkened.

From the extractor I run the honey into two large vats. There it is allowed to subside thoroughly for three days, during which time it undergoes three skimmings. It is then thrown into the extractor, and to the honey-gate is attached a large muslin bag. After undergoing slow straining it is gradually filling the cask below through a funnel, when it is perfectly free of all impurities, froth, etc. I have found that the average yield here per colony is 119 lbs. I *have* had colonies yield 210 lbs., but exceptions do not prove the rule. I manufacture a first-class quality of vinegar from all washings, adopting the method laid down by Mrs. A. J. Barber, in GLEANINGS for October, 1900, page 763.

PART OF APIARY WITH MR. ALEXANDER AT WORK.

Two years ago Jamaica honey sold in the English market at 32*s*. per cwt., and 2*s*. 1*d*. per gallon locally. Through the indifference of the middleman, or dealer, it went down six months ago to the wretched figure of 12*s*. per cwt. abroad, and 6*s*. per cwt. locally. The use of the infamous pork-barrel, and carelessness in extracting, grading, etc., were also responsible for this sad state of affairs. A well-organized bee-keepers' association has now been started. It is only three months old, but is already doing excellent work. It has a traveling salesman in England, and the very first shipment under the new *regime* realized 28*s*. per cwt. Of course, all our honey is now carefully graded and branded by the association, which is a guarantee of its purity. We hope to realize once more the old price, 32*s*. per cwt., if not more. Already 16,000 gallons of honey and a ton of wax have been shipped through the association. We have two able and energetic men at the head of affairs, Mr. H. C. Burnet, the General Manager, and Mr. C. W. McHardy, the Secretary, whose postal address is 145 Harbour St., Kingston. The enterprising Elder-Dempster Steamship Co. generously gave our traveling salesman a free trip to



A 20-FRAME EXPERIMENTAL BROOD-CHAMBER, WITH DOUBLE SUPERS ON.

England, and they carry all our honey at present at 50 per cent reduced rates. Jamaica logwood honey stands on an equal with the best honeys of the world, notably the clover honeys of America; and with careful handling, such as it now obtains through the medium of the Bee-keepers' Association, it is bound to take its place in the first markets of the world. It is a thousand pities that the prohibitive export duty of 1*s.* per gallon to America forces us to send nearly all the honey produced in the colony to Europe; for, though the output of the States is so great, there would always be a market for it, since our honey season is at its height when the bees in your own country are in winter quarters. It is obvious that there would be a demand if the honey were placed in your market about the month of April.

CORNER OF EXTRACTING-ROOM, SHOWING ONE OF THE HONEY-VATS.

In conclusion I would point out that the basis of calculation of your secretary, Mr. A. L. Boyden (see Gleanings for May, 1902, page 368), viz., the export returns, is hardly a fair one by which to arrive at the yield per square mile—more so when placed alongside of a "Census Report" in the case of Texas. There is the question of local consumption to be considered. From my knowledge I am led to say that at least 3000 cwt. of honey annually is not accounted for. Taking this into consideration, then the basis of calculation would be as follows:

Jamaica, with an area of 4200 square miles, and an output of 16,000 cwt. (1,792,000 lbs.) annually, would show a yield of 423 lbs. per square mile in round numbers. This is away ahead of Texas, California, and Cuba. When it is considered that ours is a land of eternal sunshine, and well defined seasons; that this is the home of the logwood, one of the finest honey-producing-plants of the world; that here such a thing as foul brood, black brood, or any other bee-disease, is unknown, and, lastly, that here we have the largest yield of honey per square mile, the term "bee-keeper's paradise" might truly be the designation of our island, Jamaica, land of wood and streams.

Malvern, Jamaica.

[Mr. Geo. W. Phillips, our head apiarist, formerly of Jamaica, and one who has large bee-keeping interests there now, comments as follows:]

Little did I think, when on board the train bound for Kingston to attend the bee-keepers' meeting which resulted in the formation of the Jamaica Bee-keepers' Association, and met Mr. Alexander, the writer of the above article, that I should ever have the pleasure of supplementing an article of his for GLEANINGS, as I do now, from the Home of the Honey-bees; but it is the unexpected that generally happens.

We passed through a sort of fairyland on that journey. Logwood was in full bloom; and as the train rushed along its serpentine course among the mountains, the hills, valleys, and plains appeared one undulating sea of yellow blossoms.

There were quite a number of bee-keepers on board; and somewhere about the station called Four-Paths we were joined by Mr. Hooper, the distinguished apiarist of the island. He told us he was having a splendid flow just then, and he and his boys were busy extracting. As we passed the railroad stations near which his apiaries were located we could see by the full barrels and comb-honey supers stacked up for shipment that his statement was true. The sight of those full barrels gave us fellows a sort of inspiration.

Mr. Alexander speaks of the perishing or dwindling season. Let me explain what this is. In most localities in Jamaica there is no honey coming in from the fields between August and October. During this period judicious stimulating should be practiced. Mr. Alexander has given it a comparatively refined name; the real Jamaican name is "hard times." These "hard times" follow immediately upon the swarming season, April to June. Where no effort is made to prevent after-swarms, the parent colony is left impoverished, while the late swarms have no time to build up before the "hard times" overtakes them. Can we wonder, then, that, where no feeding is done, the bee-keeper as well as bees experience dwindling times, perishing times, *hard* times? It is the careless bee-keeper all over the world who allows this condition of affairs to exist, that generally condemns bee-keeping as a failure, and quits the business with "blasted hopes."

Under normal conditions, September swarms are of comparatively rare occurrence. Of course, even in a small island like Jamaica locality makes some difference.

Most bee-keepers in Jamaica, when starting in the business, make the mistake of adopting kerosene-box hives; and Mr. Alexander is no exception to the rule. A kerosene-box, let me say, is almost identical with that which contains two five-gallon honey-tins. The sides are only ⅜ in. thick, thus offering scanty protection from the rays of the sun. Besides, being ridiculously frail, they are liable to collapse, under a weight of honey, at any time. There is not one progressive bee-keeper that I know who has not discarded them for something more substantial.

Mr. Alexander is a pleasant gentleman, and an enthusiastic bee-keeper. He is a fellow who knows how to defend his own views too, and I shall not forget the spirited discussion we had on our way to Kingston that day, and the manner in which he defended his kerosene-box hive and simple method of queen-rearing.

There are many interesting items in the above article which I can not now comment upon. However, let me say that, in order to secure large crops of honey in Jamaica, a bee-keeper must have his colonies bubbling over with bees in October. They will then be able to store the necessary amount in the brood-nest from bellflower or Christmas pop, and make a start in the super besides, so that, when the logwood bursts into bloom, the latter part of December, all hands will be ready for work, and the bee-keeper will have the pleasant task of piling on the supers.

If the readers of GLEANINGS desire it, I will say something more in a later issue about bee-keeping in Jamaica.

GEO. W. PHILLIPS.

COMB-HONEY PRODUCTION.

How to Get all the Sections No. 1 and Fancy.

Part 3.

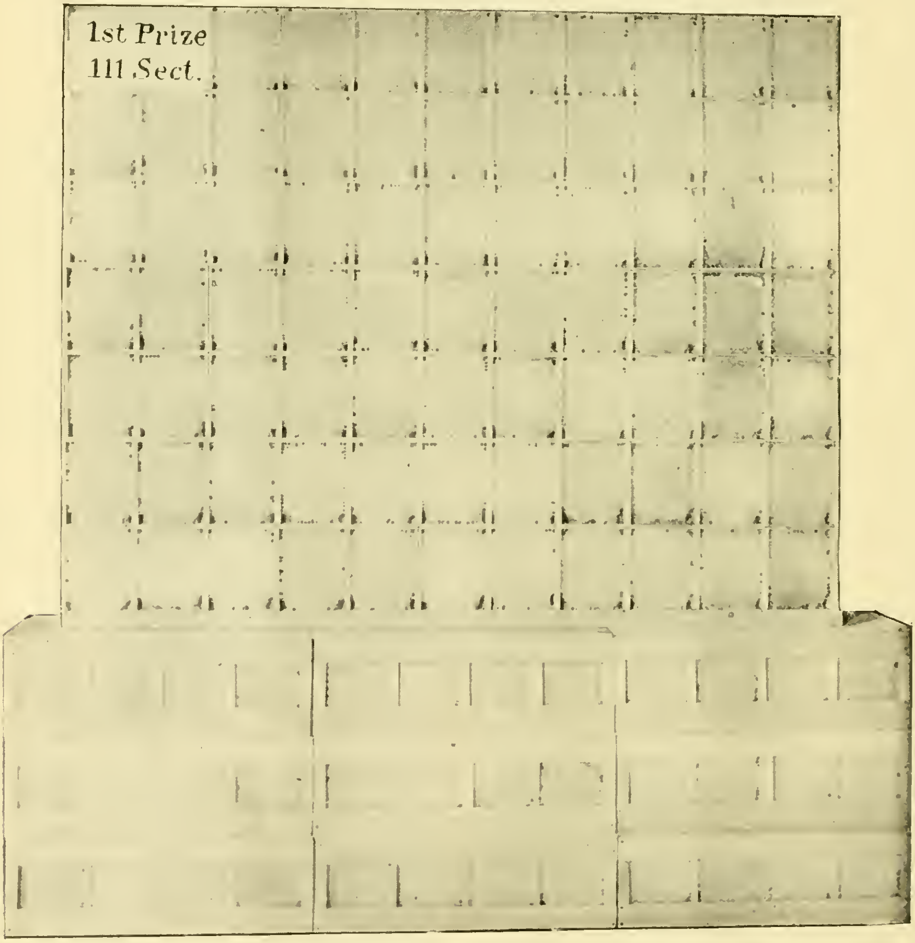
BY OREL L. HERSHISER.

The colony, having been built up to great strength, and prepared for the harvest according to one of the foregoing methods, is now, at the opening of the honey-flow, ready for the first super. It is not advised to give the super to the colony before honey is being gathered in sufficient quantity to insure continuous work in the drawing-out and building of the combs. The more rapidly the combs are built and finished, the better will be the appearance of the product. Usually the proper time to put on the super is when the upper edges of the top-bars of the brood-frames begin to have a white and fresh appearance, indicating that the bees are gathering honey and secreting wax.

For fancy comb-honey production, only the very best white sections should be used. These should be provided with full sheets of the best extra thin comb foundation, care being taken that it is securely attached lengthwise of the middle of the top of the section so it will not drop down when subjected to the heat of the hive and weight of the bees which will cluster upon it. To insure further the true building of the combs, the hive should be placed perfectly level, especially in the horizontal direction that is at right angles with the sides of the combs in the sections.

The best results will be obtained if the first super contains a few fully drawn sections of comb, of which the comb-honey producer usually has a supply saved over from the previous season. The super thus prepared is given to the colony. The upper section of the brood-chamber having been removed, and the super substituted in its place, the space formerly occupied by the colony, while being bred up for the honey harvest, has been diminished, and the bees will at once commence work in the sections. If the flowers are secreting nectar in abundance it will be but a few days till capping of the combs in the super commences, which will indicate the time when a second super should be placed *above* the first. Capping will now progress in the first super. At the same time, the honey-laden bees returning from the fields, not all being able to dispose of their burdens in the first super, which is rapidly approaching completion, will commence storing in the second, and continue without interruption. The opportunities for work in the first super are rapidly diminishing, and day by day fewer bees can be employed there, till finally the super is finished, and its completion will have been accomplished under the most favorable circumstances for thorough and complete work. But there is no enforced idleness, for the upper super furnishes store room for all the nectar that can not be stored in the first one. In due time capping will commence in the upper or second super, if the honey-flow continues, which indicates the time when the capping in the first is finished. The first super may now be removed from the hive; and the second one, which is now being capped, substituted in its place, and a third super placed *above* it. When capping has commenced in the third super, the second, or one next to the brood-body, will be finished, and may be removed; the third, or one over the second, substituted in place of the latter, and a fourth placed above the third; and so on to the end of the season.

The natural instinct of the bee is to store its food as near as possible to the brood. The apiarist should heed the teaching of nature, and keep food and brood in as compact a space as possible, and not violate the rule so unerringly pointed out by the Creator, by lifting the partly filled super and



THE PRODUCT OF ONE HIVE OF BLACK BEES AT THE PAN-AMERICAN IN A DANZENBAKER HIVE, MANIPULATED ACCORDING TO THE PLAN HERE DESCRIBED.

placing beneath it one containing empty sections, according to orthodox teaching. By practicing the orthodox method, much of the working force will be withdrawn from the upper super, and work will be distributed through that and the lower one in undesirable and unprofitable proportion, ofttimes resulting in none of the sectious being properly filled.

The system of management we have attempted to outline, and which we have found to produce profitable results, requires that there be no separating of the working and storing force of bees from the brood more than is necessary by the outward and upward extension of work in the supers; that there be not more than two supers in use on the hive at any one time; that the supers be removed as fast as completed; that there be no enforced idleness by leaving the super on till finished before giving additional storage room; and, as far as possible, to have the bees complete each super while it is next to the brood chamber to insure perfect work. By keeping the colony compact its heat is conserved, which promotes brood-rearing, keeps the hive well stocked with bees, resulting in rapid, perfect, and uniform building of combs in the super. The bees will complete each super separately, using only the upper one as opportunity for work in the lower diminishes and finally ceases.

As the end of the season draws near, the bees will finish the last super, next to the brood-chamber, with honey from the unfinished combs in the last upper super. The apiarist will thus approach the end of the season with practically all the unfinished sections in the last upper super, and all other sections, filled and finished fancy.

General adoption of improved methods of comb-honey production would exert a far-reaching influence on apiculture. There would result increased consumption, followed by better demand, and satisfactory prices for honey in the comb. It can not be denied that beautiful appearance is the most potent factor in marketing. To please the eye will accomplish more, in a pecuniary way, than to please the sense of taste. The Ben Davis apple obtained its almost universal popularity with horticulturists, who grow apples for market, because of its appearance—a beautiful red, the most desirable color for apples—and not on account of its quality, which is actually inferior. While honey is just as good in sections which have an unoccupied space between the comb and the wood, decidedly the best demand is for those which are filled and capped as nearly solid as it is possible to produce them.

The fancy and attractive appearance increases the value of comb honey, and adds dollars to the net profits of the apiarist without decreasing the quantity which the bees will make; but, rather, would there result an increased production. There would also result a decrease of the relative proportion of extracted honey as compared with that in the comb which bee-keepers would produce because of the better price and demand for the latter. This would tend to improve the demand and price of honey in the extracted form. It is to the financial advantage of the apiarist, from every view-point, to make a special effort to produce fancy comb honey.

[The illustration herewith shows the exhibit that many admired at the Pan-American. It was produced by Mr. Hershiser, on the grounds of the exposition, in the Agricultural Building, where many of the bees would be lost, on the very plan he outlines in these three articles, especially in the one we have before us. This honey, 102 lbs. all told, came from one colony of black bees in a Danzenbaker hive. When it is remembered that the locality around the Pan-American was not of the best, because the lawns were kept mown closely every day, the results were all the more surprising.

It is not claimed by Mr. Hershiser that the *hive* is responsible for this good result, because any hive could be manipulated to a great extent on this principle. But the Danzenbaker or any sectional brood-chamber is especially adapted to the treatment.

The particular feature of the plan is that, instead of getting a large per cent of sections No. 1 and 2, almost the entire product of the hive is *No. 1 and "Fancy."* As will be seen by the illustration, a very large part if not the entire lot of honey would grade as "Fancy." Under a different (or the usual) plan of manipulation, putting an empty super *under* a filled super, there might have been more boxes of honey; but there would not have begun to be as many that would grade as No. 1 and "Fancy."

Years ago there used to be a good many articles telling what to do with unfinished sections. Some recommended extracting; others, cutting out and selling for chunk honey; others, putting it back on the hives and feeding it back. It will be remembered that, when these articles were being published, it was during the *very time* that the plan of putting an empty super under partly finished ones was being exploited and recommended. In other words, if I understand Mr. Hershiser, tiering *up* results in too many unfinished sections, while tiering *under* increases the No. 1 and "Fancy." Mr. Hershiser's articles will bear careful reading, and the proof of the pudding is right before you.—Ed.]

VENTILATION OF BEE-CELLARS VIEWED FROM A SCIENTIFIC STANDPOINT.

Contrary Experiences Possibly Harmonized.

BY ARTHUR C. MILLER.

In a recent number of Gleanings you commented on the different practices in regard to the ventilation of bee-cellars, and were at a loss to account for bees wintering well under seemingly contrary conditions. At the outset I must confess that I can not shed much light on the problem; still, I may be able to give you a clue to a solution.

First, we have not yet had a full and *exact* statement of the conditions of Mr. Barber's and Mr. Doolittle's cellars. From such descriptions as I have read I should say that each afforded a greater or less amount of slow but sure change of air. If you will consider the great difference in temperature between the inside and outside air, the porosity of the walls, roof, and earth surrounding them, you will, I think, see the necessity of taking them into account in attempting to find a solution. Moisture of the surrounding soil is also a factor of some moment, also the chemical composition of the soil, as well as its nature—whether sandy, gravelly, clayey, etc.

If the soil surrounding the cellar or the cellar itself contains much decaying (even if slowly so) vegetable matter, the necessity for ventilation is increased; for such matter tends to give out carbonic-acid gas. But if the ground is very moist, even if drains prevent the water accumulating in the cellar, such moisture absorbs some of the carbonic gas produced by the bees' respiration, and limey soils, under some circumstances, absorb carbonic gas so as to produce a so called bicarbonate of lime.

Among other factors are the number of colonies to cubic feet of cellar, size of such colonies, and temperature of cellar. The colder the cellar the more honey the bees must oxidize in order to live, and the consequently greater production of noxious gas; also inferior stores or other disturbing conditions will have weight in that they cause increased activity, which results in using more oxygen.

You are up against the real thing in trying to solve that problem, and you will have to get down to science to do so. The old ways won't work. It won't do to accept the statement, "My cellar is dry." You must know how dry it is. It won't do to accept the statement that "three doors keep out all fresh air," or that the "air is never changed in my cellar all winter." You have got to *know*. You must also know the *degree* of purity of the contained air.

Mr. Cheshire's work contains, in the chapter on Wintering (Vol. 2), a very good essay on the need, value, and use of oxygen by the bees. It applies particularly to bees wintered in the open; but if you will allow for the difference in the cellar temperature you can form some idea of the amount of air needed in the cellar.

I do not have to winter my bees in a cellar, though doubtless it would save honey, though at a cost in other ways, but I should like to see the *why* of the ventilation of cellars settled. Get the exact and complete facts, and the problem will cease to be.

Providence, R. I.

[I would gather from what you say that you are of the opinion that there is more actual ventilation in those bee-cellars where there is supposed to be practically none than the owners of those cellars imagine. This is possibly true; but a very important point to be considered is uniform temperature. I think we may set it down as a fact not to be disputed by any one, that in an absolutely uniform temperature of the right degree, bees require less ventilation than where there is a variation. A warm temperature especially seems to require a change of air.—Ed.]

Heads of Grain
from different fields

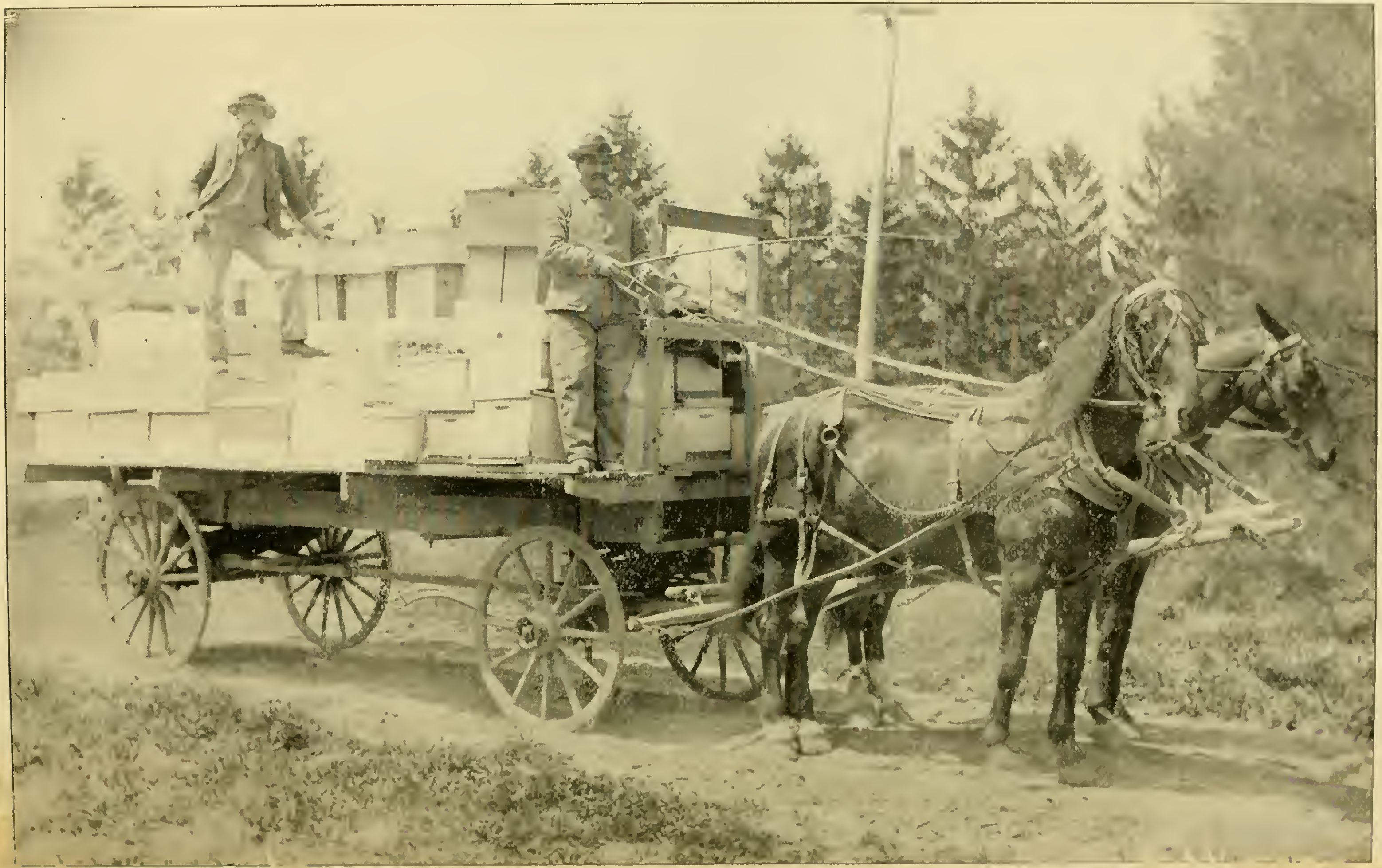
MOVING BEES A SHORT DISTANCE; SOME OF THE DIFFICULTIES INVOLVED.

To move bees a short distance in the summer, and do it rightly, causing no confusion, is quite a trick after all. Did you move those bees from the south to the north side of that tree at once, or did you move them the length of the hive at a time, once a day? Bees can be moved ahead or backward better than sidewise, especially if they are in close-sitting groups. Move them endwise the length of the hive at a time, and they will hardly notice it; but move them sidewise, even as little as the width of the hive, and a great confusion will be the result. As I said before, it is mainly by being accustomed to location that they find their home. By moving endwise, location is not changed (for practical purposes); only the distance is varied a little, one way or the other, as the case may be; but move them sidewise, and every colony except one end one has taken the place of another. Although their relative position (appearance) may be retained, their location is completely changed, giving them an extra good chance for a general mix-up.

Your compositor has made another mistake. My manuscript says, "in groups of five ten feet apart," meaning, of course, in groups of five *colonies each*, ten feet apart. The insertion of the little word *or* between five and ten changes the meaning of the sentence, and makes it illogical. In groups of five colonies *five* feet apart, there is a difference and economy in room and steps, but not when ten feet apart. G. C. Greiner.

La Salle, N. Y.

[That row of hives was moved about three times their length directly backward, i. e., northward. They had been stationed, by mistake of one of our men, as I explained, on the *south* side of the trees. When I arrived at the yard and saw what had been done I was disgusted, and decided I would move the whole row of hives backward, even



THE ROOT CO.'S MEN READY TO MOVE BEES TO ONE OF THE OUTYARDS. SEE EDITORIALS.

if the bees had located their entrances. So I moved each hive back so that they stood about a foot back of the *north* line of the trees. This was done at one operation, keeping the same relative position of the hives. The only difference was that, to the bees at least, the trees appeared to have moved southward. There was very little if any mixing, but there was an interruption, for it took the bees nearly all day to become accustomed to the change. Just before the moving they were working in the field; but honey-gathering ceased as soon as the workers returned. But conditions were normal, or practically so, the next day.

You are entirely correct when you say bees can be moved *backward* more readily than sidewise. I would not hesitate to move a whole apiary three or four feet backward; and it would make no difference if it were moved sidewise providing there were no distinguishing landmarks such as trees. If, for instance, the apiary were located in an open plain or field, without any trees or knolls, nor any thing to distinguish location, the whole bee-yard, if the relative position of each hive were preserved, could be moved a good many feet one way or the other.

In the little unconventional convention, made up of Mr. Chalon Fowls, Mr. W. Z. Hutchinson, and myself, at the home of Mr. Fowls, a discussion arose as to whether a shaken swarm could be shifted around as readily as a natural swarm. Mr. Hutchinson, as I reported, was of the opinion that it could be. We should like to have reports from those who have tested the matter. It sometimes becomes very desirable to move a bee-yard from the front of the house to the rear, because of the annoyance to the passersby in a public highway. If the shaken plan would work, the whole yard could be moved backward the depth of the lot, or nearly so. If any one tries the experiment, perhaps he had better put two or three weak nuclei in front to catch the few stragglers that may come back. These, later, can be again moved back.—ED.]

SUGGESTION NO. 1 FOR IMPROVEMENT IN WAX-PRESSES.

On page 675, Aug. 15, last year, mention is made of the fact that a continuous pressure under the screw of the wax-press was desirable; but that an ordinary spring, sufficiently stiff, would be too expensive. Let me suggest a wood spring for your wax-press, that is both powerful and cheap. As I do not know the size of the press I shall have to assume dimensions; so we will make our spring 4 feet 2 inches long and 12 in. wide and 10 inches high or thick. We shall need for it six dry hard straight-grained boards of southern pine or other suitable wood, ½×12 in.×4 ft. 2 in., and 18 pieces of any kind of stuff 1×2×12 inches.

To begin, lay down on the floor or bench three of these blocks, exactly two feet from center to center. Now lay on one of the boards, and it ought to just cov
with one under each end, an
the center. Tack the board
blocks, and lay on top of it two
with their centers 2 feet apart
es from each end of the board.
blocks to the board, and lay c
second board; on this place thre
actly over the three we startec
the third board, and on it *two*
over the two on the second boar
in this way till the 6 boards ar
are all used up, and you will ha
that will surprise you for stre
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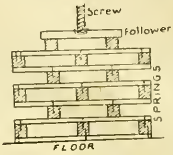
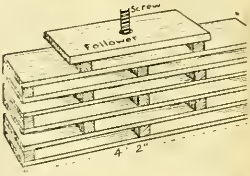




[Your scheme of a wooden sp
be all right save for one fatal ob
would soon lose its elasticity.
spring inside of a wax-press, a
on top of it, just as you have
the enveloping steam would ver
it good for nothing. As soon a
was applied the wooden boards
and stay bent. Why, that is j
they bend all bent work. The
into a steam-box, and when it i
ly soaked with hot steam it is
the proper curve, and allowed to
on-felloes, bicycle-rims, and
work, are treated in this way.—

MORE ABOUT BULK COMB HONI FOR SECTIONS WEIGHING A FU

H. H. Hyde says, page 14, th
consumer buys a can of bulk c
. . . . he feels that he is
weight." I want to emphasize
"full weight." That tells the
story. Consumers are rapidly
on" that our so-called "stan
tions do not hold a *full-weight*
are demanding bulk honey.
blame for this state of affairs?
not the consumer. Eight yea
not have a customer who calle
honey. Now I have hundreds.
takes about 500 lbs. of it eve

have one customer who will not buy it in the sections at all. He will stand by and see me cut it out of the sections, place in his bucket, and pour extracted honey over it, and gladly pay for it, and take it away. He says he gets full weight (what he pays for), and that "the comb honey floating in the liquid honey is very rich and nice."

Bulk honey, managed with the same care as that of section honey, and covered with a fine grade of extracted honey, is most delicious to my taste. Had we all adopted a section large enough to hold a full pound, the demand for bulk honey would not now be increasing so rapidly. When a customer buys a package of bulk honey he tells all his neighbors what "rich" honey he has, and soon we have a dozen more customers wanting honey like that we sold to Mr. Smith, It's no use for us to form a mutual-admiration society and say we will stick to a certain size "standard" section, and force our customers to buy light weights. They just simply won't do it. With combs 1⅜ thick I find it takes nearly 20 square inches of comb to weigh a full pound. The 4×5 sections contain $17\frac{8125}{10000}$ square inches of comb (4¾ × 3¾). The 4¼×5 section contains 19 square inches of comb, 4¾×4. I firmly believe that, if we had adopted the 4¼×5×1⅜ section, or one of equal capacity, the demand for bulk honey would not now be increasing so very rapidly. But the demand *is* increasing, and I predict that it will continue to grow.

There is one advantage in producing bulk honey that Bro. H. does not mention. When we cut out the bulk honey, place it in the cans, and cover it with extracted honey, there is no trouble with worms getting into it. We have no labor nor trouble in fumigating our honey.

Speaking of the advantages of closed-end frames, you say, Mr. Editor, in your footnote to my article, page 907: "All that you say in favor of closed-end frames is equally true of the half-closed end or Hoffman." There is one very important advantage of the closed-end frame that I did not mention. Closed-end frames confine the bees *within the frames*. This is not true of the half-closed end or Hoffman. To confine the bees within the frames is a very important advantage. No combs can then be built between the ends of the frames and inside of hive-walls. T. K. MASSIE.

Tophet, W. Va.

FEEDING BACK THE HONEY FROM PARTLY FILLED SECTIONS; HOW IT SHOULD BE DONE.

I have on hand quite a number of sections partly filled—not marketable last fall, nor filled sufficiently for home use. Please tell me if it would pay to feed the honey in them to my bees. If so, how? Would they leave the combs unharmed? If so, could they be used again?

I have no extractor, and raise only comb honey. The bees are busy now on the maples.

I thought if the bees could use these unfinished sections in raising brood I might be able to have them fill some sections with fruit-bloom honey. E. L. STEWART.

Chestertown, Maryland, Mar. 21.

[If you put such honey in the upper story of a hive, expecting the bees to carry the honey down into the brood-nest, you may be disappointed. They may or may not—it all depends on the season of the year. If you wish to have the sections cleaned out, put them in supers and put the supers in hives, stacked up in one tall pile a few rods from the apiary. Give ingress to the pile through only a very small entrance so that only one or two bees can pass at a time. The bees of the yard will rob out the sections very slowly, without making any special commotion. Mr. Vernon Burt, our neighbor, has all such sections of his cleaned out in this way.—ED.]

NATIONAL COMMERCIAL ORGANIZATION.

I hope that our people will not stop thinking and talking national organization for commercial benefits. While there is not so much want for it at this particular season of the year, this fall there will be many sad experiences, and the matter will again be brought to the front. Besides the loss to the producers, some have said that it will cost too much to maintain the head office; but it is evident that such have never put the figures together. Here are a few:

We will make our basis low, so as to be safe. We will calculate on handling only 1000 cars of honey, that being extracted, which would be 15,000 tons, or 30,000,000 pounds. Figuring upon a selling basis of 6 cts. per pound, we have $1,800,000. As the cost of selling to be upon the basis of 1 per cent, we have $ 8,000, which should be ample for that amount of business; when the business doubles, then our resources also double, which will be needed for the extra help and other appliances. Now we have figured that it will cost $18,000 to market 1000 carloads of honey through the National Commercial Agency, and we must seek for some benefit, or we are out that amount; but they are so numerous we can mention but few. First, as it now is we pay 5 per cent to market the honey. Here we save 4 per cent, or $72,000, and surely we should be able to keep the selling price at least one cent per pound higher than under the present system; and when crops are good we should still hold the prices uniform, which would mean at least two cents per pound; but figuring upon the one-cent saving, and from the 1000 carloads handled, we save $300,000; add to this the $72,000, and we have $372,000, less the $18,000 selling expenses, and here we are with a net saving to ourselves of $354,000; and when the business doubles we have $708,000, and shall soon reach the million point; yes, and see what we can save of the thousands of dollars' worth of our goods which are now consigned to unscrupulous commission men, and what is sold upon the market below its actual market value by the producers not being posted as to its true conditions.

I am sure that there is much in it for us—too much to allow to pass by and not put the machinery in motion. A million dollars each year is good money for the other fellow to make from us, and to be placed to his bank account when it is the result of our own labors, and should be retained by us. What do you say? E. R. Root seems to think the people are hardly ready for the million dollars; but it is to be hoped that they will soon reach out and take it.

Hanford, Cal. F. E. Brown.

[I see no defect in your general plan. The scheme is all right; but getting it into practical effect—there's the rub. I still believe that the best way to get at this problem is to make hard pulls for State organizations; then when we get several of them effectively working, start one that shall be national in character. To use a homely phrase, there is such a thing as biting off more than we can chew. It is practicable to organize local and State associations or exchanges; but I think it would not be feasible just yet to launch forth a national organization. Your general plan shows, however, how much might be saved by a national organization; and Gleanings will be glad to lend its columns for a general discussion of this kind. I may be mistaken; but I believe we should start from the lesser and work toward the greater. If I am wrong, I should be glad to co-operate with any reasonable effort for getting a national organization launched forth at once.—Ed.]

FROZEN BEES REVIVED, AGAIN.

In Gleanings for April 15th, page 341, I find an assertion made that "bees chilled to death came to life again." The bees in question were only apparently dead, but not really so. Nothing can be raised to life again by natural means when life is once gone. More than 20 years ago I had the same experience during a very cold winter, with bees that were *like dead*, and "came to life" again. After a severe cold spell a colony was placed in the sun. A few bees came forth, and, flying about, they soon fell on the icy snow and remained there for about six hours. They seemed to be frozen to death. When I gathered them in a small pasteboard box and brought them into a warm room I could scarcely believe that life was yet in them; but after two hours the bees began to hum within the box. In many other instances, where bees were in nearly the same condition for a longer time they never came to life again. Considering this I am apt to judge that severe cold weather will not kill bees if they have plenty of honey just where the cluster of bees is sitting, provided cold spells do not last too long without interruption. That bees can ever be brought into a state in which they hibernate, as some other inse do, without food, is yet to be proved. I perience shows the contrary, so far as knowledge reaches.

St. Meinrad, Ind. Alphonse Veith.

[It was Prof. Cook, or possibly some o else, years ago, who conducted a series experiments to determine how long be would stand a hard freeze without actually dying. The results secured by him are practically the same as those you arrived at.

No, I do not believe that any intelligent person ever believed for a moment that bees when actually dead could be brought to life again. Such a proposition is too silly to be debated for one minute.—Ed.]

DENTS IN QUEENS; HOW TO REMOVE.

We notice in your issue for May 1, something about dents in queens, the editor thinking that dents sometimes do no harm. They certainly do no good, but why allow a dent to remain, when ten seconds will remove it? We have never come across a dented queen but that we could remove the dent; but the longer the dent remains, the more skill it takes to do it. Roll a sheet of paper an inch in diameter, then dent it. Now with thumb and finger press on each side of the dent, and it will snap out. Practice on that paper, and then try a queen. It is rather tedious work to take the dent out of some queens, yet it can be done.

In your issue for April 15 you ask for the names of those who are willing to help support a State organization of bee-keepers for Ohio. You may put our name on the list. We will try to be with you this coming winter; but in case we can not, our dollar will be. H. G. Quirin.

Parkertown, Ohio.

[Hadn't thought of your plan before, of pressing out the dent—perfectly simple and feasible. By the way, I now see that on page 900, 1901, you described this operation, but I had forgotten it.—Ed.]

HOW THE BEES WINTERED IN THAT CELLAR BLASTED FROM THE SOLID ROCK.

I have just removed the bees from that cellar blasted from the solid rock. I put in 58 stands Nov. 16; took out 58 March 23, which is ten days or two weeks earlier than we usually set bees out in this section. Soft maples have been in bloom since the 17th. This is the third winter my bees have come through without loss when wintered in that cave. C. H. Pierce.

Kilbourn, Wis., Mar. 23.

WHAT TO DO WITH COMBS BUILT CROSSWISE; WILL SHALLOW BROOD-CHAMBERS PREVENT SWARMING?

I bought a number of colonies in the regular Langstroth hives, but the bees have had no attention for the last two years, and hence many combs are built crosswise, or at least so crooked that they can not be extracted. Now, I think that the bees will carry out the honey if these cases are placed below the brood-nest and on top of the brood-nest an ideal super be placed. Do you think that I shall succeed in having the honey carried out by the bees, and stored above the brood-nest?

Do you think it will prevent swarming if Ideal supers with starters of comb foundation are placed on top of the brood-nest as soon as the bees begin to bring home a little honey, although pollen is in abundance? I think you understand what I mean, for the bees are not gathering any surplus now or before April, and even later; but the swarming season is mainly in March, or just a little before honey is coming in in abundance.

A SUBSCRIBER IN TEXAS.
Goodwin, Mar. 7.

[Bees may or may not carry the honey to the brood-nest above. A good deal will depend on the season of the year. In the fall, toward the approach of cold weather, they might do so. What I should recommend would be to set these hives on a stand by themselves, give an entrance just wide enough for the bees to pass one at a time, and then let the bees rob it out slowly. Of course, if there are a good many bees in the vicinity, not your own, this plan would not be feasible, as it would lose you too much honey. The plan you propose would not prevent swarming. Of course, giving the bees plenty of room has a tendency to discourage it.—ED.]

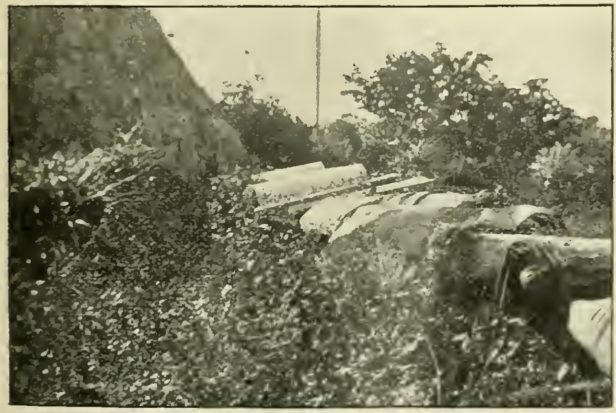


FIG. 2.—BEES IN LOG HIVES IN CUBA.

NOTES OF TRAVEL

BY A. I. ROOT.

SOME GLIMPSES OF CUBAN APIARIES, ETC.

First we give another view of Rambler's apiary, the same as is shown on page 400 of our last issue. By comparing this one with the one mentioned above you will see that it was taken from a different point of view.

RAMBLER'S APIARY FROM ANOTHER STANDPOINT.

On page 109, Feb. 1, I mentioned a visit to Mr. Ciriaco Gutierrez. On page 110 I described particularly this apiary, and I here present two views. No. 2 is taken from the back, and 3 from the front.

You will notice in Fig. 3 that one of the hives, instead of being made of a hollow log, is just a piece of palm-leaf rolled up. Any thing that sheds the rain will answer for a hive in Cuba. In one place I saw a bee-hive made of a piece of sheet iron rolled up. It looked like a section of stove-pipe. But that can not be, because they have neither stoves nor stove-pipes in Cuba.

Fig. 4 gives us a view of the little town of Paso Real. At the left you get a glimpse of the schoolhouse, the only building in town that has glass windows, and almost the only one that has a floor, except the postoffice. There are, perhaps, half a dozen stores, meat-markets, groceries, etc., but they are all on the bare ground. Most of them have a sort of porch out in front, and here the goods are often exhibited for sale. When it rains hard, the horses are hitched in the shelter of this porch, and, as a consequence, more or less horse manure is found most of the time inside the porch in front of the store, close to the dry-goods and groceries. I believe the proprietor generally shovels out the droppings a little about once a day. When he has a big run of custom, however, he does not seem to get around to it *every* day. This state of affairs, however, is found mostly in the smaller towns. Where there is a population of one or two thousand, they usually have some nice stores and eating-places, especially right in the center of the town.

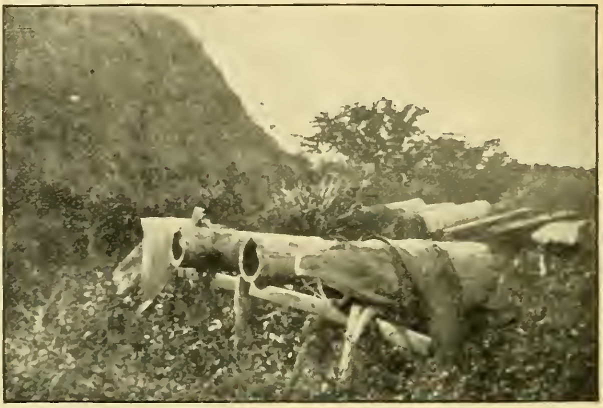


FIG. 3.—APIARY OF HIVES MADE OF HOLLOW LOGS, ETC.

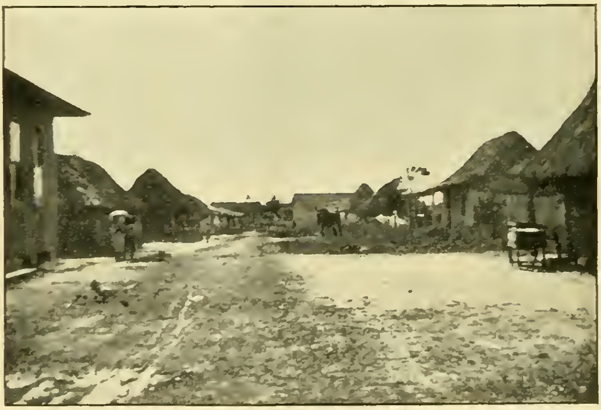


FIG. 4.—PASO REAL.

Fig. 5 represents your humble servant standing by a big banana-bush in the path at our Paso Real apiary. I did not expect my picture to be taken at that time; but one of the boys who was visiting us from a neighboring apiary snapped his kodak on us. The banana nearest me has not yet sent up the bud that produces fruit; but it will later on, for every banana-tree bears fruit more or less once a year. The tree on the right, you will notice, has a bunch of fruit partly visible. There is a great variety of bananas in Cuba. Some are very small, and exceedingly sweet. Some are red and some yellow. And then there are great big bananas — larger than any thing we see here in America. These large ones are mostly the cooking variety. When sliced up and fried, they are something between a nice sweet potato and a good Irish potato. I found them very healthful and appetizing. The banana grows with great rapidity. The one standing near me grew from the ground in one season. After it has borne a bunch of fruit it is cut off close to the ground, and then it grows up and bears another crop of fruit the next season.

Fig. 6 is a picture of Mr. Hilbert when he was on his way to pay a visit to Mr. Ciriaco Gutierrez, the man who gave us the stingless bees. The picture shows the royal palm-trees and other vegetation, and gives a glimpse of the country roads where ox teams haul things to market.

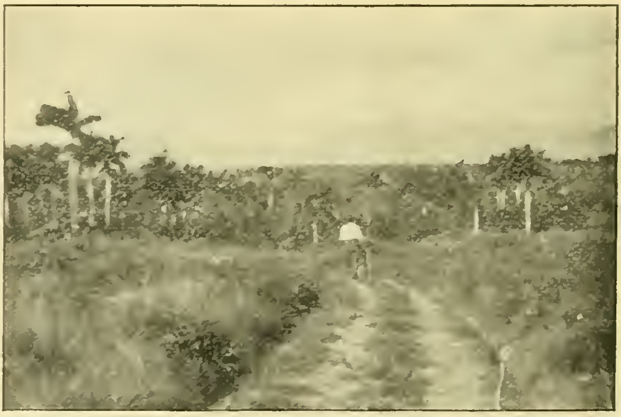


FIG. 6.—A CUBAN ROAD.

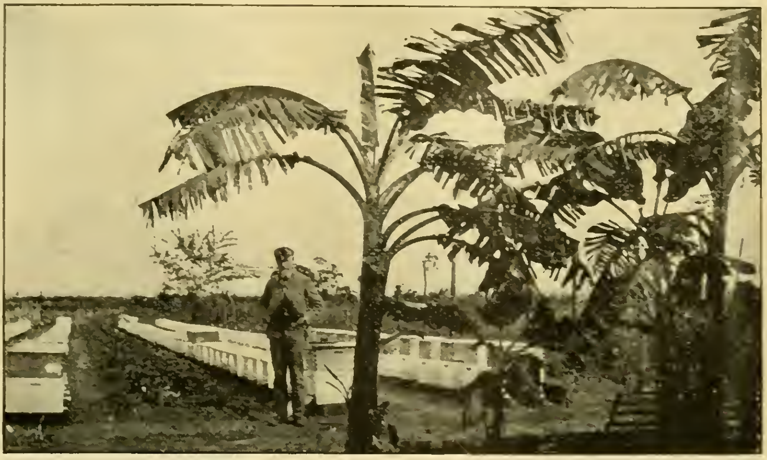


FIG. 5.—OUR PASO REAL APIARY.

Fig. 7 gives us a glimpse of a couple of young ladies, or "senoritas," as they are called in Spanish. They are neighbors of Mr. Moe, and Mrs. Moe invited them over to give your humble servant a little reception. Of course, we could not talk very much together, but the girls were kind enough to give me some Spanish songs. I told one of Mr. Moe's hired men, the one who has the kodak, that I would give a five dollar bill for a picture of the younger one if he could get her while she was laughing and carrying on as she did there at Mr. Moe's that evening. And I would give another five-dollar bill to have the readers of GLEANINGS hear the rattle of the tongues of these Spanish senoritas. And, by the way, some of the "senoras" (women) could keep up with them pretty well, I think. We have all heard about American women who could use their tongues, especially when they were at a sewing society, or something of that sort. But my impression is that these Spanish women would get in more words in five minutes than any American woman I ever came across could in fifteen. And then I began to wonder if even *they* could really comprehend or catch on to such rapid talk. But judging from the rattling rejoinder, I was forced to believe they did. The girls in question could talk Spanish to the boys and the rest of the family even if they could not to me. If I am correct, the two girls work for a living, and are carrying on a sort of millinery store. Mr. Moe laughingly said if I gave their picture in GLEANINGS he would be able to get plenty of help in his apiary from young men from the States; and he thought that may be they would be willing to work for reasonable wages, "in consideration," etc.

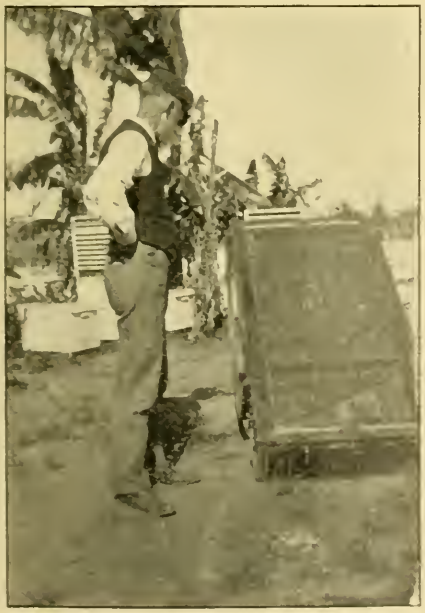


FIG. 8.—RENDERING WAX WITH THE SOLAR EXTRACTOR.

Fig. 8 is a picture of your humble servant while he is interested in rendering wax with the solar extractor. I was not posing for a picture; but if if remember correctly Stephen snapped his kodak on me without my knowledge or consent. If Mrs. Root had been consulted in regard to the matter she would have insisted that I go to the barber's and have a little slicking-up done before posing before our readers in this manner.

Fig. 9 gives a view of the royal palms, and one that shows the swell in the trunk in a remarkable degree. Notice what a slender stem comes out of the ground, and how it swells out like a mammoth seed-stalk onion. The bunches of berries that they feed to the pigs is seen right up under the foliage where the leaves branch out.

I have before stated that these swollen bodies are often used on a sort of drag for drawing water from the springs and streams.

OUR HOMES,

BY A. I. ROOT.

But I say unto you which hear, Love your enemies, do good to them which hate you. bless them that curse you and pray for them which despitefully use you.—Luke 6 : 27, 28.

After I got on my wheel, as mentioned in our last issue, p. 453, I remembered that it was Saturday, and pretty well along in the afternoon; therefore it would be impossible for me to reach Taco Taco, 60 miles away, without encroaching on the Sabbath; and I will confess that for a while it seemed as if I would be almost excusable for pushing ahead, even on Sunday, especially as my mission was for peace, and it was not a very difficult matter to convince myself that I would be doing *missionary work* in reconciling Mr. de Beche to my young friend Gilson. Then I reflected that at Taco-Taco I could not find a Sunday-school, nor attend church service of any kind. So I decided to stop over Sunday with my friend Mr. Fraser and his wife at Guanajay. As it was, I did not get in till after dark. I found my way, however, to the parsonage, and was rejoiced to see the audience-room filled as usual, and to find my friend Fraser preaching a sermon. I did not know that he had a service Saturday night. In order that I might not disturb anybody I opened the door carefully, placed my wheel inside the court, and thought I would slip into the audience-room quietly, without disturbing any one. Now, the only door to the chapel opens into the corner of the room where the organ stands. Bro. Frazer, when he talks to his people, stands beside the organ. Just beyond him was a vacant chair, right beside (and a little back of) the speaker. This chair was the one I had been in the habit of occupying when I was present at the services. In order to reach it I would have to go in behind him. I thought I could do this without disturbing him or interrupting the sermon. I failed to consider, however, that the audience had not only become well acquainted with me, but that they would be sure to show the pleasant surprise on their faces when they caught sight of me in my accustomed seat just back of the pastor. It was too late, however; but when I sat down I tried to look unconcerned. Bro. Fraser read, by the broad smiles on the faces of his audience, not only of the old and young, but white and black, that something had happened; and he gathered from the direction toward which all eyes were centering that it was a little behind him, and off at his left. He stopped abruptly in his talk, and then turned right around and confronted me. Bro.

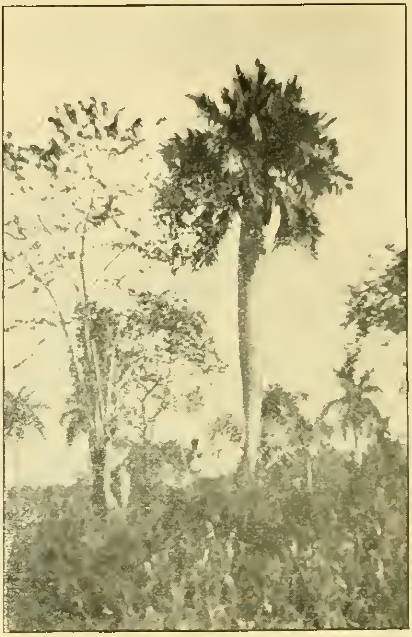


FIG. 9.—ROYAL PALM WITH ITS SWOLLEN TRUNK.

FIG. 7.—SPANISH SENORITAS.

Fraser has a very expressive face. I think I never saw any one who could with his mouth, eyes, and brows — in fact, the whole of his face — express as much as he does. I presume he has acquired it to a certain extent by endeavoring to make the people understand when he had but an imperfect knowledge of their tongue. As he whirled around to see what was the matter with his audience I rose up and commenced an apology. When he gave me a pretty good shaking in the way of a welcome, there was a good deal of merriment among the little flock. He then turned to his audience and said, after he had finished, that *I* would give them a little talk.

Oh how happy I felt to find that little group so glad to see me once more! Just a few days before, I had told them I was going back north, and might never see them again; but I added that I would try hard to make them a visit the following winter. As I closed I said I hoped they would be able to understand me in English a year hence; or better still, perhaps, I could talk to them a little in Spanish. Well, on this particular evening when Bro. Fraser asked me to talk I reminded them of what I said on my former visit, and asked them if they had learned to speak English since that time. Now, these Cuban friends are always ready for a harmless joke, even in prayer-meeting; and instead of replying to my question they turned on me and asked why I had not learned Spanish (español) during the week or more that had passed. Then I told them a little story. The credit of my story belongs to the *Christian Endeavor World*.

MR. ROOT'S STORY.

"Years ago the millionaires in the city of New York decided to establish an asylum for babies that had neither father nor mother to care for them. They accordingly put up a beautiful building, installed it with the nicest cradles and little cots that money could purchase. They hunted up all the finest appliances, for caring for infants, that the world could produce. Then they got some of the best doctors; they had the temperature adjusted just right for babies; the milk was all sterilized; the water and the air were chemically pure, and the entire institution was up to the highest notch in a scientific way, and they supposed those babies would just grow and thrive, and be away ahead in point of health and intellect of those that grow up in filth, and play in the dirt. But in spite of all their skill — in spite of the beautiful cradles and little cots, the babies just cried and fretted and—*died*. The doctors could not tell what the matter was, and *nobody* knew why those little waifs should not be happy and healthy. Finally somebody suggested that they turn off the doctors and put the babies in charge of some good woman who *loved babies*. I think they hired some mothers who had had experience, and who, they had reason to know, could get hold of the babies and hug and kiss them in the old orthodox way. Now, my friends, what do you suppose happened? Why, the babies stopped dying, got well and happy, and the institution was a success. The mortality was even less than in the outside world. The whole trouble was this: The poor babies hungered, not only for plenty of milk, but they wanted to be *loved* and *kissed* and *cuddled* and *talked to*. When they opened their eyes in this cold world, and found no one who loved them as babies ought to be loved, they said in their infantile mind, 'Why, we might just as well die now as at any other time. Nobody loves us, and nobody cares for us; and what is the use of living?'

"Now, little friends, what is the moral of this story? It is this: It is not only the *babies* of this world that want to be loved, but it is grown-up people also. If you wish to do anybody good, you must love him. The dear Savior said we should love even our enemies, and do good to them. If you want to bring boys and girls to Christ Jesus you must love them, just as those mothers loved the motherless babies. Just a little way from where we are gathered here to-night there is a reform farm where they are trying to make the bad boys of Cuba good boys. They have beautiful buildings and fine gardens, nice places for these boys to sleep, and plenty for them to eat; but unless there is somebody connected with that reform farm who *loves* these boys, even the bad ones, they will never make any progress in making them *good*. If there are bad people here in Guanajay, not only bad men and women, but bad children, we can never make them good unless we commence to love them. The dear Savior left his home in heaven, and came here to earth to save us all because *he loved us*. He came especially because he *loves sinners*. In fact, he once said that it was not the righteous but sinners he came to save. Sometimes people say God loves *good* little boys or good little *girls*. Now, this may be partly true; but it is not more than half the whole truth. God *especially* loves *bad* boys and girls, and bad men and bad women; and with this wondrous love of his he tries to make them good. God bless you, little friends; and when I come again to Cuba, may I not only find you loving one another, but loving the great outside world, and by this Christlike love endeavoring to bring more and more bad boys and girls into this mission meeting."

I will not take time now to tell you of the very pleasant time I had with Mr. Fraser and his wife the following Sunday. I told them where I was going, and had their prayers joined with mine for all the bee-keepers in Cuba. By the way, it makes my heart bound now to speak the word "Cuba," especially when I pronounce it as the Spanish do—*Koo*-bah.

Just as soon as it was light I was off on my wheel. I had a good many adventures that I have alluded to elsewhere — at least some of them — before I arrived at Taco-

Taco, and stood before Rambler's old honey-house and home. Mr. Gilson saw me through the window; but he made haste to open the door, and seemed very glad to see me, although I thought he looked a little downcast and troubled. When I told him my errand he replied something like this:

"Mr. Root, if Mr. de Beche felt *half* as bad as I do about this whole affair, I pity him from the bottom of my heart. When I got home I could not sleep, and could eat but very little; and, to tell the truth, I have had hardly a moment's peace since I left Havana."

I need not take space to give his explanation of the matter; but I want to stop right here to put in a plea for the young boys who sometimes do foolish things. The best boy in the world when he is, say, from 18 to 21, is liable to err in judgment. Come to think of it, I have seen boys of 60 or more who occasionally did a foolish thing by just an error in judgment. Well, now, my dear brother, father, or whatever you may be, when those boys of 20 make a mistake or a foolish move, do not be too rough on them. Do not scold, and say that "anybody of common sense might have known better." For God's sake, remember how it was when you yourself were a boy. Remember the nights when you could not take your night's rest because somebody had been rough on you just because you were young in years. Make allowance; go slow; question carefully and gently before you make haste to hurt the poor boy's feelings, and before you crush out the manly spirit that is just beginning to assert itself in this boy. Even if he has been overbearing, even if he has been getting the "big head" just a little, don't be too rough on him. Reason with him kindly and gently.

When I asked Mr. Gilson about his talk with the consul, he explained it as I have already done. When I told him that Mr. de Beche and I could not be quite sure he was not going to sell the Rambler apiary and run off with the money, he burst into tears, and cried—I was going to say like a *child;* but I think I will add that he cried as any good man ought to cry when he is even *suspected* of dishonesty. "Finally," said I, and I am ashamed of myself that I did not say it any sooner, "Mr. Gilson, I begin to suspect that you are a Christian boy. Am I right?"

Between his sobs he replied:

"Mr. Root, when I left home in the far-away North I was not only a member of the church but I was superintendent of the Sunday-school. I would not touch a penny of what does not belong to me any more than I would commit suicide. I will give you and Mr. de Beche every opportunity you may wish to investigate my past record; and if I owe anybody on the face of the whole earth a copper that is not paid, let me know and I will pay it now."

Then he cried again. May be he will feel hard toward me for giving this glimpse of his inner life to the outside world; but when I assure him that this simple little story will be the means of making life easier for perhaps a thousand more young men, I am sure he will forgive me. I asked him if he would write a brief letter to Mr. de Beche, apologizing for the way he did. He said he would most gladly; and in a minute more he was looking happy while he wrote the letter. My mission was successful—yes, more than successful; and when I knelt and prayed for him, for my friend Mr. de Beche, and for the rest of the beekeepers in Cuba, I felt again that I had made no mistake in visiting Cuba. God wanted me there; and it was his voice that called, as I told you last fall.

In due time I stood in Mr. de Beche's office again. I was well and happy. How could I be otherwise when I was running errands for the Master? Mr. de Beche was also smiling and happy. Almost his first words were that he had got a letter from Mr. Martin's relatives, explaining that the writer was in California at the time of the Rambler's death, and saying that that was the reason why he did not get an answer and thanks for his kind services sooner. When I handed him the letter from Mr. Gilson, explaining that it did not come through the postoffice, but that I went 60 miles to get it, and hoped that, under the circumstances, he would read it and forgive our young friend, he said at once, in a manly way, that of course he would let bygones be bygones; and I thought he looked especially happy as he read the letter, although I do not know what Mr. Gilson saw fit to write.

Now, friends, when you are tempted to think the world is cold and unfeeling—that everybody is looking out for No. 1, and that the best thing for you to do is to look out for No. 1 and let the rest go—when you are tempted to have these uncharitable thoughts, remember my Cuban story; and whenever you are tempted to get too low-spirited because somebody has served you a mean trick, or what looks like one, especially if that person should be a *boy* (may be a boy in experience if not in years), remember this Cuban story; and remember, too, my text for May 15, telling us not to be weary in well doing; and do not forget my story to the Cuban children about loving the babies. It *is* love that makes mankind better. It is not law, although law is right and proper when nothing else will do. And finally, dear friends, I hope you will have confidence enough in your old friend A. I. Root to believe that he is right when he says there are no circumstances, and nothing that *can happen* in business, or anywhere else, that would justify a man in taking his own life.

"LET US NOT BE WEARY IN WELL DOING."

The following, from a recent sermon by Rev. Jesse Hill, struck me so forcibly that I have thought best to give it here :

We grow discouraged because of the little progress we make or seem to make in the Christian life. A man can *become* a Christian in a minute; but it takes *time* to become a *saint*. He can become a Christian so quickly because that means becoming a pupil. A Christian is a learner, a disciple: he is an apprentice in the workshop of Jesus Christ. But perfection in sainthood comes only after long lapses of time, in the majority of cases. It takes years to broaden the sympathies. Will power is attained only by the constant choice of the right. The history of the growth of a Christian life is in this parable: First the blade, then the ear, then the full corn in the ear.

HIGH PRESSURE
GARDENING
BY
A.I. ROOT.

A LETTUCE-GREENHOUSE THAT COVERS THREE-FOURTHS OF AN ACRE.

May 2d it was my privilege to look over the lettuce-greenhouses of Mr. S. Shisler, of Beach City, Ohio. Nine years ago friend S. took a notion to grow Grand Rapids lettuce, and built a small greenhouse. His crop the first winter paid for the entire cost of the greenhouse and every thing connected with it; and every year since then he has been increasing his area under glass until now his plant covers just about three-fourths of an acre. He has been successful from his first investment up to the present time. Although he has expended nothing in the way of advertising, he has had more calls for lettuce, all the time, than he could supply. I think his average price is from 10 to 15 cts. per lb., according to the season. When I visited the lettuce-greenhouse of the Ohio State University, Columbus, you may remember I said they harvested a crop of lettuce every *six* weeks; but in order to do this they had strong thrifty plants twice transplanted, to be put into the beds not only the very day but the very hour the crop was removed. Well, Mr. Shisler can take a crop from his beds every *four* weeks. He does this by using only potted plants. The seed is sown on good compost, far enough apart to give the little plants plenty of room; and when large enough these are transplanted, say two inches apart in a good bed of rich soil. After they have made a pretty good root they are placed in $2\frac{1}{2}$-inch pots. These pots are set in trays similar to those used for selling strawberries. In fact, Mr. Shisler used to be a strawberry-grower, and he uses his old strawberry-trays for holding these little pots. Of course, he uses the very best of compost, made of old stable manure and sandy loam, to fill the pots. You will remember that these trays of pots can be easily watered by sub-irrigation. Just set them in a vat containing water at just about the right height. The water will then soak up through the pots so as to get them all exactly right. He grows the lettuce in these pots until the roots have gone all through the soil and begun to "kiss" the sides of the pot, as our English friends express it. Now, then, when he cuts a crop from a bed, the ground is worked over, and potted plants put in the place of those he took out. You may say this is lots of work. But he and his grown-up son attend to every thing without any other help than that from the night watchman. This man is employed to fire up, and keep the temperature just right; and between times he does all of the potting of the young lettuce-plants. It strikes me this man must be a pretty good sort of fellow, to be night watchman and do work enough to earn wages besides his duties as watchman. Yet I have heard watchmen say several times they would rather have some work to do than to sit down and get lazy, and may be become sleepy.

Mr. Shisler has experimented some on different styles of greenhouses; but he thinks now that the even span with butted glass, and not very steep roof, suits him as well as any. You see there is an advantage in having a roof rather flat, in the way of saving glass. I suggested that heavy wet snow might prove to be a pretty severe strain on a roof made so flat; but he says he has had no trouble from that source. When the snow begins to be rather heavy he puts on more heat from the steam-pipes, and thus melts the snow off quite rapidly. He greatly prefers rain water for watering his plants, although they have very good well water. As he is out in the country one mile from Beach City he has no aid from the town waterworks. A windmill pumps the water into an elevated tank, and this gives him head enough to do all his watering. I believe his windmill pumps the soft water out of cisterns also into this elevated tank. The houses are all connected. The gutters are down, perhaps, three or four feet from the surface of the beds. The beds are all on the ground. And, by the way, he has a splendid arrangement along the paths for supporting the earth in the beds. Instead of using boards, as most lettuce-growers do, he uses cheap heavy slate. One edge of the slate is let down into the ground—or, I might say, set down in the path—deep enough to keep its place. The upper edge rests in a bar of wood perhaps 2 inches square. A groove is made in the under edge to receive the top of the slate. These pine bars are supported by a stake driven in the bed flush with the top edge of the bar. As these stakes in time rot off, he thinks he will use iron stakes next time, bolting the wooden bar to the side of the metal stake. The wooden bar does not rot, because it is just above the surface of the ground in the bed.

Mr. Shisler uses overhead watering. He has pipes running under the ground all over the place, with places to screw on a hose about 50 feet apart. So far he prefers overhead sprinkling; but he thinks he will make some experiments in sub-irrigation. He gets rid of the green fly by fumigation.

Now, there is something wonderful in the fact that he has grown fine crops of lettuce every winter for nine years, in the same ground; and, in fact, he has never removed the earth and put in fresh soil—not even in his first greenhouse. Of course, he manures heavily. He draws in stable manure from the town, and works it over, letting it ferment until it forms a compost; and this compost is the only manure that he has found profitable. He has not as yet undertaken to grow any thing in his houses in summer. After the last crop of lettuce is taken off—say about the first of May—the whole contents of the bed are permitted to dry up all summer long; in fact, they get to be as dry as dust; and my impression is that this thorough drying-out, in a measure, at least, sterilizes the ground. He has never had any rot to do any injury worth mentioning. He has had some damping-off when the plants were young. Of course, he may have trouble from rot or fungous diseases later on; but from the fact that he has had such good success with the same soil for nine years, it looks as if he had not very much to fear in that direction. Lettuce-rot is something queer, and oftentimes difficult to be accounted for. One man will have lettuce-rot right along, no matter what he does, whether he uses old ground or new every winter. Another man does not have it at all, no matter what *he* does.

When the sun gets to be so hot as to make the lettuce dark in color, and too tough, Mr. S. gives his glass a good coat of whitewash. So far his rafters are pine, or mostly that. I believe he has been using some chestnut, which does very well where you can find lumber straight-grained, and no knots. He says he does not care for a groove to carry off the drip water. Such water so far has done no harm worth mentioning.

Mr. Shisler enjoys working under glass. He is in love with the business or else he would not have succeeded as he has done. And is it not true, my friends, that the man who is in love with his occupation almost always succeeds, while he who goes into something he does not care much about, just because he gets an idea he can make money by it, seldom finds the money he is looking for? Choose an occupation that you are in love with, and then see to it that you do not let your love grow cold.

STRAWBERRIES, $500 WORTH FROM HALF AN ACRE.

I sold, two years ago, within a few cents of $500 worth of strawberries off from 26 rows 220 feet long, and I sold about $300 from the same patch last year.

Sioux City, Iowa. LEWIS LAMKIN.

Such reports as the above are valuable inasmuch as they indicate that great yields are confined to no particular locality. Mr. Hilbert gave us a big report from Northern Michigan, and Dr. Miller followed with one a little larger from his place; and now we have the above from Iowa. I think similar results may be accomplished in almost any locality if you go to work right, and have the ambition and enthusiasm that are needed to make a success.

OUR UNITED STATES WEATHER BUREAU.

Our friends may remember that, during the last of April, we had three or four days when it was very warm. Wednesday morning, April 29, the thermometer stood above 80; and when the weather-telegram reached us at 9:25 in the morning, reading as follows, it occasioned some surprise:

> For Ohio, showers to night; colder in northern portion; Thursday, much colder, with rain, possibly snow on Lake Erie.
>
> Washington, April 29.

As the weather still kept warm all day, there were many jests at the expense of the Weather Bureau. Thursday morning I was up about sunrise, waiting for Ernest to take me out with his automobile; and wanting something to do while I was waiting for him to waken I got a good broom (it was not a *new* broom; notwithstanding, in *my* hands it swept tolerably clean) and commenced sweeping the walk in front of the factory. With the great rush and the call for help in every department of our business I fear it had been many days since the walk had had a *good* sweeping; but as Ernest did not wake up I kept on with my sweeping until I got pretty well over to the railroad track; and I was still wielding my broom when the hands came to their work. The machinery now starts at ten minutes before six. Of course, there were quite a good many jokes because the president of the company was sweeping the walk in front of the factory. Some of them asked me if I had "marked my time;" others if I had got a new job; but a large part of the 228 hands now busy in our employ bantered me about the snowstorm that the Weather Bureau said was coming. I told them the weather was sometimes late, just as the electric cars and steam cars are sometimes late; but it would be sure to come sooner or later during the day.

Now, this whole matter was interesting to me because I had a glimpse of the way in which people look at the predictions of the Weather Bureau. I do not remember one in the whole lot who seemed to have faith enough in the Weather Bureau to believe that any great change was coming. Even the good pastor of our church came with a basket, wanting some plants from the greenhouse. I told him he was welcome to the plants, but I called his attention to the weather-flag; and even *he* seemed to have but little faith in what it portended. At 9:50 in the morning the following telegram came; but as the temperature was still above 80 when noon came, there was still more merriment about the promised snowstorm.

> For Ohio, rain and colder to-night; Friday, rain in southern portion, rain or snow in northern part; much colder.
>
> Washington, April 30.

I was watching the barometer, however, and I informed everybody there was a big storm close at hand. The weather was so *very* warm, however, and so few clouds were visible, I myself told Mrs. Root I did not think the grandchildren needed to take umbrellas and water-proofs in going to school. Between one and two, however, I noticed the wind was rising rapidly (it blew fearfully at noon), and swinging to the north, with but little change in temperature. A little before two o'clock rain set in, and it grew colder rapidly; and in less than twelve hours the rain had changed to snow, and the mercury dropped from 80 to 30, or something over 50 degrees in twelve hours. Friday morning, May 1st, icicles were hanging to the hydrants; but as it was a freeze instead of a frost, fruit suffered but little or none. All day, May 1, the temperature was but little above 40, and everybody predicted the ruin of the fruit. We market-gardeners have a sort of rule that, when the temperature is 50° or lower at sundown, a killing frost may be expected. On the morning of Friday, May 1st, however, the Weather Bureau was at hand telling us that Saturday would be warmer, and that there would be only a light frost Friday night. I confess that, at eight or nine o'clock, it looked to me as though we were bound to have a killing frost; but I was agreeably surprised Saturday morning, May 2d, to find only a little frost in spots, and but little if any damage done. Now, the point I wish to emphasize is this: The average man, woman, and child will persist in confusing the predictions of the Weather Bureau with the silly talk of Hicks and others of his stripe who pretend to be able to predict what the weather will be a whole year ahead. In the above case the Weather Bureau did not attempt to give warning until the storm was only two days or a little more distant. They were right in every particular except that it did not reach Medina quite as soon as they said it probably would.

Now, this one single prediction of the Weather Bureau probably saved the people of the United States thousands of dollars—that is, if they gave heed to the timely notice; and the predictions, also, that there would be no killing frost that Friday night probably saved other thousands by letting fruit-men and gardeners know that warmer weather was just at hand, and would modify the threatened frost.

Temperance.

GIVING THE WHISKY BUSINESS "FAIR TREATMENT."

We take pleasure in clipping the following from the *Modern Farmer and Busy Bee* for May:

> Some few people have ordered their papers stopped (which is their privilege, of course) because of the position we have taken with regard to whisky advertisements. They say that we are not treating the whisky business fairly. We would like to know what whisky has ever done for humanity to entitle it to any consideration. It has filled our prisons and almshouses; it has dwarfed the intellect and stunted the moral nature of multitudes of people; it has brought poverty, want, and wretchedness to many families; it has spread crime, disease, sickness, and death in its pathway; it has ruined the life and prospects of many a true and noble young man; it has brought disappointment and heartaches to many a beautiful, loving, and true woman; it has filled the world with crime, misery, sorrow, and disappointment; it has always carried in its wake squalidness, imbecility, inefficiency, and vacillation of character; it carries on its face the brand of illegitimacy; it is sold in the darkness and on the sly behind curtained windows and closed doors, and no respectable citizen thinks of frequenting the saloon in the same open, bold, and aboveboard way he does a bank, a drygoods store, or a bakery. On Sunday he goes in at the front door of the church or lecture-hall boldly and openly, but he sneaks around to the "side door" of the saloon, and behind closed doors and closely drawn curtains takes his drink, and hurries out almost ashamed to be seen by those who have come on the same errand and in the same sneaking way which he has himself. Will some one tell why this is so? Why is it that it is not thought necessary to put screens before the doors, and curtains at the windows of other places of business? If the saloon has any excuse for existence, if whisky has any good in the world to its credit, we are free to confess that we do not know what it is. It is reported to have saved the lives of some people who have been bitten by rattlesnakes, but we are inclined to doubt if if it can rightly lay claim to even this much good If it can, it is on the doctrine of "Similia similibus curantur," cure poison with a more deadly poison.

I should like to give the above such a hearty amen that every reader of GLEANINGS could hear it. Not many years ago there was a warm discussion in regard to being too severe on the dram-sellers. Somebody said I was not treating the saloon-keepers *fairly*, to which I replied, "My good friend, if a mad dog should get loose in your streets, and was biting men, women, and children right and left, would you stop those who were hot in its pursuit to remind them that, whatever they did, they must treat the mad dog fairly?" Somebody said that my *comparison* was not "fair." I replied the only thing unfair about it was the mad dog was destructive to human life only, while the saloon-keeper destroys body, soul, and spirit. I was well aware that friend Abbott is a born orator, but in the above extract he has more than sustained his reputation as a vigorous speaker and writer.

WHISKY ADVERTISEMENTS.

In going in and out of Cleveland on the new electric railway one sees out in the fields, and in a good many places, big flaming whisky advertisements. One of the most glaring (and "galling") is one that reads, "Wilson Whisky," in letters a foot long or more. Right under it, in smaller type, is, "That's all." Yes, they have the same thing on garbage-boxes all through the city. There has already been a protest sent in to the mayor, about having whisky advertisements on the neatly painted boxes for rubbish that are scattered all around, even in front of handsome homes. But the signs are there still, so I suppose the city fathers decide the revenue from the whisky men, for this advertising, more than counterbalances the protests from Christian people whose feelings have been outraged. I said to myself several times, and pretty emphatically, it is not "*all*," or else I am greatly mistaken in the temper of our people. I for one would like to see *war* on this matter, right here in our own land, if nothing *but* war will remedy such a state of affairs.

Will Carlton (the "Farm Ballad" man) seems to feel very much about it as I do. Below is an extract from his magazine for May:

> *Every Where* will now publish its first whisky advertisement. It has had several offered to it, with good pay, from men who are lining their own pockets by destroying the lining of other people's stomachs; but it has never accepted any of them, not wishing to profit from that kind of money. This advertisement is gratuitous.
>
> In riding along the railroads, representatives of our magazine have often seen mammoth signs in the fields and by the fence-sides, labeled "Wilson Whisky: That's All." They are intended, no doubt, to convey the idea that, when whisky is of that particular brand, it is all right, nothing more need be said, and the drinking may go merrily on. And it may be as good whisky as any that is made, so far as we know; but in connection with any whisky whatever, what a miserable lie rests in those two words—"That's All"!
>
> "All?" There is no whisky manufactured upon this earth that may not draw up the nerves so tightly as to make them unduly loose when the tension is taken away; that may not to some extent injure the beautiful and accurate machinery with which God equipped the human form; that may not push the body a little further on its way to destruction. "All!"
>
> "All?" There is no whisky that may not put into the system a certain amount of alcohol that should not be there; that does not augment the effect of such virus as is already in the blood; that does not have a tendency to destroy healthy digestion and proper circulation; that does not contribute another impulse toward the frying of the brain. For heaven's sake, of what was that advertising-agent thinking when he wrote and had painted those two words, "That's All"?
>
> More yet: It leads the body into danger A simple fall upon the earth may not hurt the drunken man so much as a sober man, for his body is more relaxed through his very recklessness; but when he falls into the fire it hurts him; when he tips over a kerosene-lamp it hurts him; when he lies in a stupor and is crushed by the carwheels it hurts him; when he gets into a senseless, brutal fight, he is very apt to get hurt—sometimes killed. "Wilson Whisky—that's all"!
>
> More: The wet-rot of the stuff soon pushes his mind into decay. He may show spasmodic brilliancy now and then that he could not have produced except for liquor; but it is at the permanent expense of his faculties The mental products that he gives forth in such cases savor of the sickly hothouse rather than the healthy garden Any habitual drinker may know that his mind has not only reached its highest development, but has commenced its decadence, and that, however people may laugh at his "brightness" now, he is really on the road to practical idiocy. Every time he performs the role of a lunatic he takes a long step toward permanent mental paralysis. "That's all"!
>
> Worse than any thing thus far said, his moral sensibilities soon become clouded. He gradually learns to lie, to cheat, to blaspheme, to blackguard, and to murder, either all at once or gradually. Sometimes, in lucid intervals, he gets a straight look at his own character; and then how he does despise the picture! He curses his own weakness, and the strength of the adversaries that are pulling him down—the men who sell whisky, the men who make it, the men who advertise it in newspapers and on walls. It was not bravado merely that prompted one Iowa rum-seller to put a sign up over his door, reading, "The Way to Hell."
>
> But even the above is not "all." It is only a small part of it. As soon as a man gets drunk he is likely to become a public nuisance and menace. He insults women on streets and in railroad-coaches; he carries the pestilence of his disorderly presence and his putrid breath into whatever company he goes. "All!"
>
> He makes his home into a saloon; his wife into a hopeless drudge; his children into the worst kind of orphans. He does his best to undermine the foundations of his country, and of all countries - home. When he comes back to it he is a terror; when he goes away from it he is a fear and a dire apprehension. Nobody knows what he will do while in liquor. "All!"

HEALTH NOTES
BY
A. I. ROOT

THE PHILOSOPHY OF CATCHING COLD.

The following, from T. B. Terry, has so much good sense in it, and makes the matter so plain in regard to the way we catch cold, that I take it entire from the *Practical Farmer:*

> All readers do not quite understand what has been said on this point, judging by letters received. I said exposure to cold is not the real or primary cause of the condition known as a cold. I will try to explain more clearly. Suppose we had a gasoline-stove in our house, and it should spring a leak. The escaping gasoline, changing into gas, mixes with the air. I know there is a leak there, but neglect it carelessly. By and by I come in; and, wishing to light a lamp I strike a match. Instantly an explosion occurs that injures me considerably, to say nothing of the damage to the house. Now, what would you say was the cause of the explosion? Why, the leaking of gasoline. Not one of you would say, "I think it came from lighting a match." And still that was the secondary (or incidental) cause. The primary cause, which all would think of as the real one, was allowing that gasoline to escape into the room. And I doubt not many would say I deserved the injury received. I don't think one of you would advise me to avoid striking matches in the future, but rather to see that there was no gas that the match could ignite, and that would be good sense. Now, I am convinced that the real, primary, or first cause of so-called colds is invariably from within, and not from exposure to cold. It is over eating, breathing impure air, lack of exercise, lack of bathing, or something of this kind. The blood becomes overcharged with impurities. Nature tries to discharge these through the mucous membrane, usually in the head, because the proper channels are unequal to the task. The secondary or exciting or incidental cause of the cold, the last straw that brings the matter to a climax, may be a chill from exposure to cold. When the system is in the condition named above, the reactive powers will be weak, of course. But for this unhealthy condition, exposure to cold would do no hurt. The climax may also be brought on by eating when over-tired, or by overdoing in any line. Now, when you get a cold, and are asked how you came by it, why not be as sensible as when talking about the gasoline explosion? Why lay the blame in one case to the real cause, and in the other to the secondary or exciting one? There is as much reason for saying Terry struck a match and it blew him up, as for saying you went out without any rubbers, and caught cold, or facing that wind yesterday, or sitting near that window, which caused a little draft of air, gave you a hard cold. If you were all right internally, no trouble would come from any of these matters, any more than from my lighting a match when there was no gas around. In proof of this, why have you not always taken cold when exposed to cold air? Simply because your system was in a healthy condition when you did not. A person in vigorous health, with pure blood coursing through his body would not be affected unfavorably in the slightest degree by these exposures to cold. Which is better—to remove the fundamental cause, or leave it there and try to be very careful about any possible exposure that may bring on a climax? With this kind of care you are constantly making the body weaker and less resistful, and making yourself more and more a hothouse plant. If you will pay reasonable attention to the plain laws of health, particularly to breathing fresh air, not overeating, and taking proper exercise, you may soon get in such good health that exposure to cold will not have any injurious effect. In fact, fresh cold air will act as a tonic, building up your vital powers still higher To test this matter, last August, when the days were very warm and the nights cool, so my bedroom was so warm no covers were needed to make me comfortable at bedtime; but before morning I was glad to draw a blanket over me. I lay down about a score of nights without any thing whatever on or over me—not even a night-shirt. About 2 A.M. I would waken and find myself nearly as cold as ice as the four large windows were wide open. Then I would cover up warmly and go to sleep again. No harm whatever came of it. I was cold, and got

over it again — that was all. But my blood was not clogged with waste material. It was pure, and circulating properly, caused by attention to matters named above. Under these conditions I will wear an overcoat a few days, if I wish, and leave it off when an extra-cold day comes. I will even go without my underclothes any day in winter, or sit by an open window in a hall where a meeting is held, and let cold air blow directly on me, or do any thing else that people generally think causes a cold, and no bad effects will follow. I have tried these things enough to know. But were I overeating — eating from habit when food was not strongly wanted and relished, and taking insufficient exercise, and breathing impure air largely, then I should not dare to take such chances. By the way, to get fresh air, the other night I got our Mr. Henry, who carries a screwdriver on purpose, to take off the outside storm-sash from my bedroom window. The glass was out of one-fourth of the inside window, and I was glad of it, although it was zero weather. My only fear was that they might put it in, as the sash was stuck so it could not be raised; but they did not, and I breathed in good health nine or ten hours each night. I believe in these matters I advocate, good friends, and use them to keep in the best health.

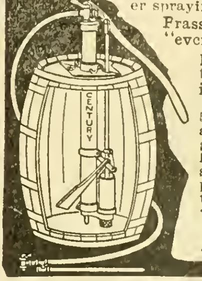
Hudson, Ohio.

Tobacco.

For obvious reasons we withold the name and address of the writer of the following letter:

Mr. A. I. Root:—In the early eighties a relative obtained a smoker from you on the promise never to use tobacco again. This promise was not what you called for. The fact is, he *never used tobacco.* His children protested at the time. He always seemed to be an honest man otherwise. He passed on "over the river" a year ago. I used the smoker last season probably the last it will ever be used Every time I lit it last summer the thought would come, "This smoker never was paid for. It ought to be paid for." Though I was in no way responsible for his getting it, still I have used it, and don't know why I shouldn't pay for it. I inclose money order for 75 cents.

May the Lord be praised, dear friend, that there is at least here and there a man who wishes to shun even the appearance of evil, and who recognizes that he is, at least to some extent, "his brother's keeper." Another thing, it gives evidence, at least indirectly, that the present generation is more honest than the one preceding it. I believe it is true that mankind in general are getting to be a little more keenly sensitive to the importance of being honest in their *actions* as well as in words. Seventy-five cents is only a small matter, I know, but it rejoices my heart to know that we have a start made by at least one person in regard to this matter of conscience. Now, is there not some one else who will be moved by this little story to fix up something that happened long ago? I do not mean to put in a plea for what may be due The A. I. Root Co., but rather for what may be due your fellow-man. It is a good investment—yes, a magnificent investment— as I happen to know from *personal experience.* Look back over your life, and pay up whatever you find is not exactly square or is not what it should be. It may not make you any richer in this world's goods, but it will make you richer when you come to make that last review before death calls. Once more let me quote, "What shall it profit a man if he gain the whole world and lose his own soul?" Keep the voice of conscience in good running order, so it may speak out sharp and bright and clear. Do not snub it by your acts, and make its voice so faint that it will in time be no longer heard. Now, dear friend, I wish it were my privilege to give your name, but may God bless you for this little act.



The Century Sprayer
a small cut of which is shown in this advertisement, offers more advantages to the orchardist, fruit grower, etc., than any other spraying outfit on the market. Brass cylinder, brass valves, "everlasting" fabric plunger packing and the only thoroughly reliable agitator. Cylinder 2¼ ins., stroke 5 ins. Then, too, it sells at a lower price than other good pumps. Send for handsome free catalogue, showing full line of pumps and twenty varieties of sprayers.
THE DEMING CO., Salem, O.
Western Agents—Henion & Hubbell, Chicago, Ill.

Root's Goods in Central Michigan!
Sold at their prices. Present given with each order amounting to $2 or over. List sent free.
W. D. Soper, Rural Route No. 3, Jackson Michigan.

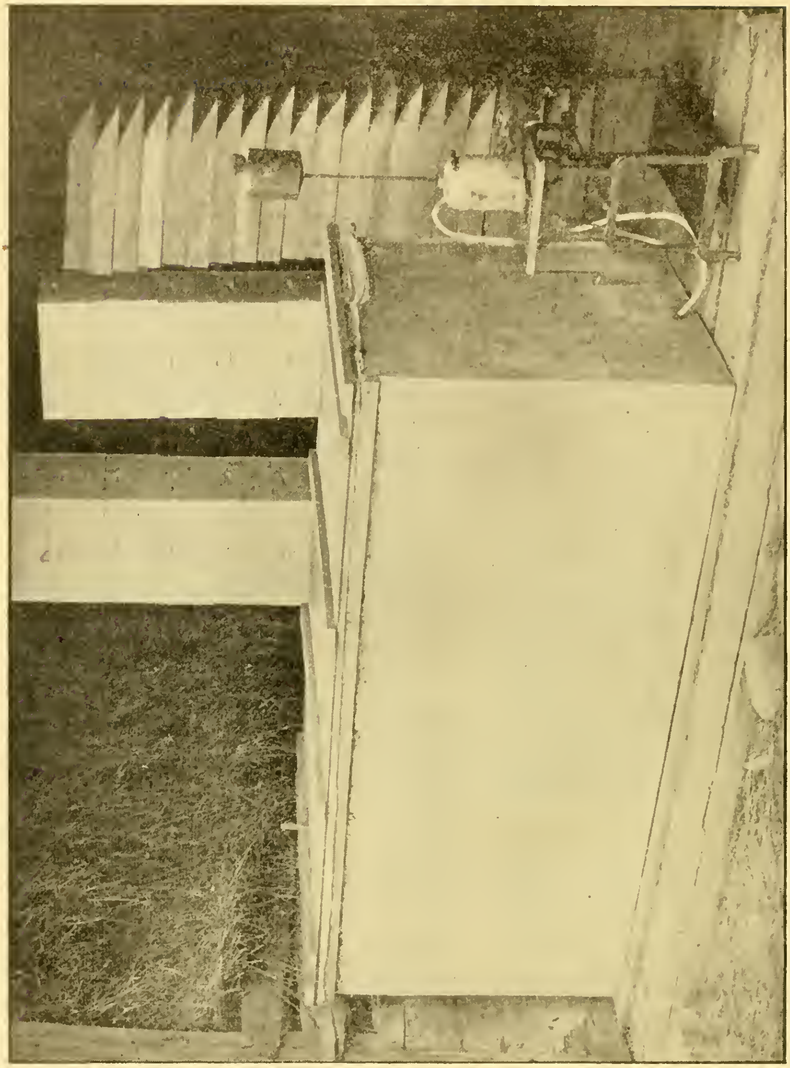
Readers of Gleanings
desiring to know the results of my forty years' experience in rearing queen-bees, and to learn of my new process of producing queens, can do so by purchasing a copy of IMPROVED QUEEN-REARING. The book and a valuable Adel breeder sent by mail for $2. Prospectus and catalog ready. *Adel bees have a world-wide reputation.*
Henry Alley, Wenham, Mass.

RED-CLOVER QUEENS!
We are now ready with as fine queens as can be reared. Untested, 75 cts.; tested, $1.00; breeder, $3.00. Nineteen years in queen-rearing. Send for my circular; it is worth $10 to you. Satisfaction guaranteed.
G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENN.

QUEENS DIRECT FROM ITALY
Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address
MALAN BROTHERS, Luserna, San Giovanni, ITALY.

POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
Inland Poultry Journal, Indianapolis, Ind.

THE VERY BEST GRADES AND WARRANTED TO BE PURE **HONEY** ADDRESS THE A. I. ROOT CO. MEDINA OHIO.



C. A. Huff's Tank for Fumigating Foul-Broody Combs.

There is a descriptive article accompanying this cut in the May REVIEW, showing how Mr. Huff destroyed foul brood in combs by fumigating them with formalin gas. Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the sender to the REVIEW one year for only 90 cents.

W. Z. Hutchinson, Flint, Michigan.

For 1903 You Require I Supply **PERFECT QUEENS**

Norristown, Pa., March 14, 1903.

Dear Sir.—Find inclosed $1.00 for one untested Golden queen. . . . I wish you would send a queen just like I bought of you last spring. It is one of the best and prettiest queens I ever had. At present my apiary numbers 35 colonies. Yours truly,

HENRY A. MARKLEY.

These queens are giving general satisfaction. Try some. Address

GEO. J. VANDE VORD, Daytona, Fla.

Pure Italian Queens in State of Washington!

My friends and patrons I wish to thank for their many kind words; my aim is to do still better. Mismating will be rare if ever. I keep only pure stock. Have imported queens from some of the most prominent breeders, and queens are reared by the natural-swarming process. Prices in May and June: Tested, $ .50; untested, $1.00; after June, 25 cts. less for either.

Robt. Mirring, Dryad, Lewis Co., Wash.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Do You Know that you could come nearer getting what you want, and when you want it, from the New Century Queen-Rearing Co. (John W Pharr & C. B. Bankston), than anywhere in the United States? Untested, 50c.; tested, 3 and 5 band, 75c; all other races, $1.00. Send for circular. **Berclair, Goliad Co., Texas.**

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence, : Doniphan, Missouri.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa , writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens Before July First.

	1	6	12
Selected Warranted....................	$1 00	$5 00	$9 50
Tested	1 50	8 00	15 00
Select Tested..............................	2 00	10 50	
Extra Selected Tested—the best that money can buy...........	4 00		
Two-frame Nuclei, no Queen........	2 50	14 00	25 00

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Strong Testimony in Favor of

Moore's Strain of Italians

Prof. Frank Benton, of Washington, D. C., whose name is familiar to all progressive apiarists, says :

"I have several times, in the course of correspondence, and in conversing with bee keepers, had occasion to answer the question : 'Where can the best Italians be got?' It is, perhaps, not an easy thing to say, with certainty, but at least I have felt I might be able to tell where GOOD ones could be obtained. A number have been referred to you, for, although I have not tested your stock personally, I thought I knew pretty well, from general reputation, its character. A bee-keeper near here—Geo. A. Lanphear, of Vienna, Va.—who got some queens of you on my recommendation is so well pleased with them—in fact, gives your bees such a good recommendation to me for gentleness and working qualities, particularly their working on red clover, that I thought I would like to try some myself."

I was not aware that Prof. Benton was recommending my stock until I received the above letter. Such testimony as this certainly has great weight, and shows why my business has grown so fast.

Prices for daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, $1 00 each; six, $5 00; dozen, $9.00. Select untested, $1.25 each; six, $6 00; dozen, $11.00. Safe arrival and satisfaction guaranteed Send for descriptive circular.

My 23 100 breeder was awarded a $25.00 prize by The A. I. Root Co. for producing bees showing the longest tongue-reach on record. Competition was open to the whole world.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

Queens

My specialty is queen-rearing I rear two strains only—Long-tongue Red-clover Three-banded and the Golden Five-banders that work red clover as well as the three-banders. These two strains are the best bees in this country, all things considered. I furnish more dealers with queens than any other breeder in this country. Why? Because the queens give their customers the best satisfaction. I insure all to be purely mated. Untested, 75c each; tested, in April, $1 25 – after April, $1 00 each. My former address was Caryville, Tenn., but my queen trade has doubled for several years and I have moved to Texas. Remit by postal money order to **Daniel Wurth, Karnes City, Karnes Co., Texas.**

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring —*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

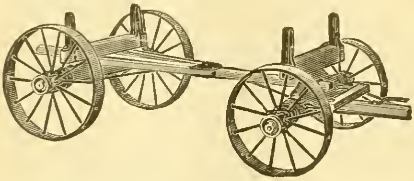
W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00 Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.

Chicago to Colorado.

New overland service via Chicago, Milwauke & St. Paul and Union Pacific line. Thro' sleeper and free reclining-chair car to Denver from Chicago 10.25 p. m. daily. No changes nor delays.

Booklets and folder free.

F. A. MILLER, Gen. Passenger Agt., Chicago.
E. G. HAYDEN. Traveling Passenger Agent,
217 Williamson Bldg., Cleveland.

Cuba.

If you are interested in Cuba, and want the truth about it, subscribe for the

HAVANA POST,

the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

Squab Book Free

Squabs are raised in 1 month, bring *big prices.* Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into.* Send for our **Free Book,** "How to Make Money With Squabs," and learn this rich industry. Address

PLYMOUTH ROCK SQUAB CO.,
19 Friend St., Boston, Mass.

Carniolans and Italians. Choice Queens a Specialty

Having added extensively to our queen-rearing plants in the North and the South we can furnish any number of queens on short notice.

Carniolans. Very prolific, hardy, gentlest bees known. Great comb builders. Sealed combs of a snowy whiteness. A worker on red clover.

Italians. Gentle, prolific, swarm very little, fine workers, and a red-clover strain.

The Carniolan-Italian Cross. A cross giving the combined qualities of each race, are hustling workers, the coming bee for comb honey.

One untested queen, $1; 6 for $5; 12 for $9. Tested, $1 50. Best breeder, $3 Best imported breeder, $5. For full colonies, one or two frame nuclei, large orders for queens, send for descriptive price list Orders booked now will be filled when desired.

F. A. Lockhart & Co., Caldwell, N. Y.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5-banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity, from 5 to 35 miles apart, February and March, $1.00 each, or $9.00 per dozen. All other months, 75c each, $4.25 for six, or $8.00 per dozen. Tested queens of either race, from $1.50 to $3 00 each. Breeders from $3.50 to $10.00 each 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**
P. O. Box 79, Beeville, Bee County, Texas.

$QUEENS--$BEES--NOW.

A. L. Swinson, Queen=breeder, furnishes best to be had in U. S. **First=handed,** Warranted queens, $1.00. Tested, $1.50. Breeders, $5 to $10. **American Albino Italians,** and **Adels mated to Albinos.**

SWINSON & BOARDMAN,
Box 358, Macon, Ga.

Do You Buy Queens

If so, it will pay you to investigate my claims. I breed from best honey-gathering stock, and rear queens by best-known methods. I guarantee good queens, and beautiful, gentle bees. Some of my customers have bought 100 to 300 queens per year for *their own yards.* Write for circular and information.

Untested queens, $1.00; $9 00 per dozen; tested, $1.25.

J. B. CASE, Port Orange, Fla.

Golden or Leather-colored Honey Queens

bred from the Laws strain. Untested, 90 cts.; tested, $1.00; selected tested, $1.50; extra selected tested, $2.00; breeders, $2.50 to $5 00. None better.

H. C. TRIESCH, JR., Dyer, Ark.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. ORDER "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

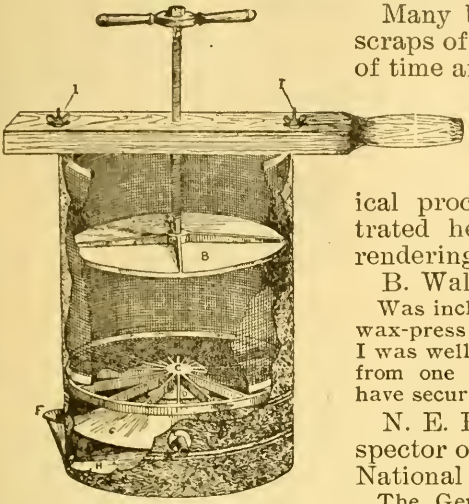


Fig. 169.—The Root-German Steam Wax-press. Price $14.00. Shipping weight, 70 lbs.

WAX PROFITS.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated herewith fills a long-felt want in rendering wax.

B. Walker, Clyde, Ill., says:

Was inclined to believe at first that the German wax-press was a failure; but after a thorough trial I was well pleased. I secured 30 lbs. more wax from one day's use of the machine than I would have secured by the ordinary method of rendering.

N. E. France, Platteville, Wis., State Inspector of Apiaries, and General Manager National Bee-keepers' Association, says:

The German wax-press is by far the best machine or process to save wax from old black brood-combs.

Manufactured by

The A. I. ROOT CO., Medina, Ohio, U. S. A.

We are now paying 30c cash, 32c trade, for average wax delivered at Medina.

SLUG SHOT kills currant-worms, potato-bugs, cabbage-worms, and insects on flowers; used 22 years successfully. Sold by the Seed-dealers. For booklet on Bugs and Blight, address

B. Hammond, - Fishkill-on-Hudson, - New York.

HOW TO Make Money

Any one willing to work can make $18.00 per week selling our absolutely new Pocket Dictionary and Atlas of the World combined; 90 clear concise maps; 35,000 words defined; fits the pocket; worth a dollar to anybody. Send 25 cents for sample and terms.

Rand, McNally & Co., Chicago, Illinois.

Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago, Ills.

In Olden Days

men were broken on the wheel, now they buy

Electric Steel Wheels,

and save money. They fit any wagon. Made with either staggered or straight spokes. Let us tell you how to make a low down wagon with any size wheel, any width tire. Catalog tells. It's free.

Electric Wheel Co., Box 95 Quincy, Ill.

The A. I. Root's Co's Goods in Oklahoma.

Save freight by buying of F. W. VAN DE MARK, RIPLEY, O. T.

Catalog free for postal.

S. D. BUELL

Manufactures bee hives, and is agent for The A. I. Root Co.'s goods, which are sold at factory prices. Catalog sent free. Bees for sale. Beeswax wanted.

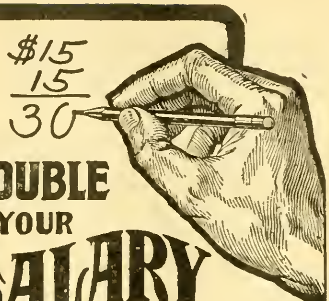
Union City, Mich.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.



DOUBLE YOUR SALARY

Don't spend spare time thinking what you might be if your salary were doubled! *Doing*, not thinking, will make your wish a reality. Our free booklet, "Are Your Hands Tied?" tells you what to do and how to do it. Thousands have already doubled or largely increased their salaries by following our plan. Under our guidance you can do the same. Act today! I. C. S. Textbooks make it easy for those already at work to

Learn By Mail

Mechanical, Steam, Electrical, Civil, Mining, Telephone, and Telegraph Engineering; Shop and Foundry Practice; Mechanical Drawing; Architecture; Plumbing; Sheet-Metal Pattern Drafting; Chemistry; Ornamental Design; Lettering; Bookkeeping; Stenography; English Branches; Teaching; Locomotive Running; Electrotherapeutics; German; Spanish; French.

Circular free. State subject that interests you.

INTERNATIONAL CORRESPONDENCE SCHOOLS,
Box 799, SCRANTON, PA.

AN EXPERT'S ADVICE

can be had free by writing us. Mr. H. M. Horton conducts this department in our great

Poultry Supply House.

Every necessity of the poultry business carried, all of the highest quality. Also Standard Bred Poultry, Hatching Eggs, etc. Write us your troubles and your wants. Ask for catalogue D. Sent free.

W. J. Gibson & Co , (Inc.,) Union Stock Yards, Chicago.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Fruit Packages of All Kinds.

—ALSO—

BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

Seven Carloads of "WEED" New Process Foundation

Our Output for the past twelve months.

Read Your Name Thro It

Look for this brand on each package.
Machinery and process patented.

Have you ever been annoyed by sagging and buckling of brood-combs? Have you ever seen bees gnaw holes through some brands during a slack spell in the early honey flow? Have you not had bees pull down a large portion of sheets of surplus; and, where no separators were used, spoil not only one comb but the two adjacent? These annoyances are unknown in apiaries where foundation of this brand is used.

The A. I. Root Co., Medina, O.

PATENTED
TRADE MARK

The "Star" Ventilator.

Storm-proof, effective; for ventilating all kinds of buildings, barns, stables, and factories of all kinds. Send for illustrated booklet

Merchant & Co., Inc.,
Philadelphia, Brooklyn,
New York, and Chicago.
M'uf'rs High-grade Bright Tin.

POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. *Sample Free.* 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. **Catalogue** of poultry books free. *Poultry Advocate*, Syracuse, N.Y.

PAGE

Page Poultry Fence

heaviest and strongest made—fences poultry IN, and stock OUT. Dealers don't keep it. Write us.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

FENCE! ***STRONGEST MADE.*** Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

HIGH CARBON COILED SPRING STEEL WIRE
CATALOGUE FREE.

FENCE

INDIANA STEEL & WIRE CO.
BOX [illegible] MUNCIE, INDIANA.

READY FOR

Prompt Delivery

Red-clover Untested Italian Queens:	Each, $1; six, $ 5.70.
Red-clover Tested Italian Queens:	Each, $2; six, 11.40.
Red-clover Select T's'd It'n Queens:	Each, $3; six, 17.10.
Italian Breeding Queens:	Each, $5.00, $7.50, and $10.00.
Best Imported Italian Queens:	Each, $5.00.

If you are in a hurry, send us your order.

If you want good queens, send us your order.

We do not handle cheap queens.

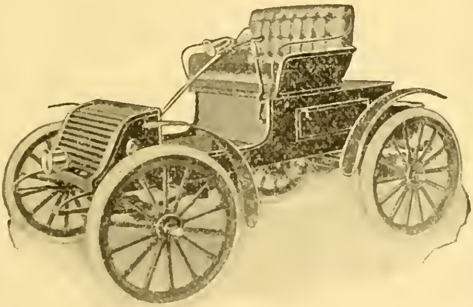
If you want Nuclei or Full Colonies, let us quote you prices. State how many you can use.

Gleanings in Bee Culture, one year, and an Untested Italian Queen, for only $1.00. We have already mailed some premium queens, and expect to send them out within a week after orders are received. Don't delay if you want a queen early when she will do you the best service. Queen circular free.

The A. I. Root Co., Medina, O.

$750 HYDRO CARBON

Capacity: 100-mile Gasoline-tank.



Capacity: 300-mile Water-tank.

Weight 940 lbs.; seven-horse power actual. Will run at any speed up to 25 miles per hour, and climb any grade up to twenty per cent. For catalog, address

Friedman Automobile Co.,
3 East Van Buren St., Dept. B, Chicago, Illinois.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
J. T. CALVERT, Bus. Mgr.
A. L. BOYDEN, Sec.

TERMS. $1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, *in advance;* or two copies to one address, $1.50; three copies, $2.00; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

SPECIAL NOTICE
Special Notices
By Our Business Manager.

BEESWAX DECLINED.

Until further notice we will pay 29c cash, or 31 in trade, for average wax delivered here. We have a large supply on hand, and the market is somewhat easier than it was a few weeks ago. By July 1st the price will likely go still lower.

GLASS HONEY-JARS.

Bear in mind we are supplied with a large stock of honey-jars of the various styles listed in our catalog, and can fill orders for these, both large and small, with promptness. Those using large quantities will do well to write us for prices, stating quantities and style used.

SECOND-HAND 60-LB CANS.

We have on hand several hundred boxes of two 60-lb. cans, second hand, but in good condition, which we offer in ten-box lots at 45 cts.; 25 boxes or more at 40 cts. per box. Most of these cans have been used but once, and are bright inside, and in good condition. They will need washing out before being filled.

NEW BOARDMAN FEEDER-CAPS.

On another page we show the Boardman feeder with the new perforated cap on the pepper-box principle. These caps fit any standard Mason jars, being 2¾ inches in diameter. Price of caps only 5 cts. each; 40 cts. for 10; by mail, 1 ct. each extra. No change in price of feeder complete with jar, or in flat without jar.

BUSINESS BOOMING.

There is very little change to report on the condition of orders. We are still behind to the extent of 10 or 12 carloads for our dealers, some of whom are awaiting cars to assort up their stock so as to fill orders completely. We are crowded worst on sections. If any can use No. 2 in 4¼ x 2 or 4¼ x 1 15/16, four beeways, or 4¼ x 1½ plain, 3⅝ x 5 x 1½ plain, or 4 x 5 x 1⅜ plain, we have a surplus of these sizes, especially the two first mentioned, which we should like to dispose of. There are few places where a four-beeway section could not be used instead of a two-beeway, with the result that the more free communication by the extra openings would encourage the bees to enter more promptly the super. Over in Great Britain there are a great many more sections used with four beeways than with two, for this very reason.

GERMAN WAX-PRESS COVER.

To those who have had trouble with breakage to cover-casting of the German wax-press, we can supply for $1.00 the new oak cross-bar reinforced with metal casting threaded to fit a ¾-inch screw 10 threads to inch, single lead, or 8 threads to inch, double lead, together with the lugs for attaching to the can and cover to fit each side of the bar to close the top of the can. This price is less than half what we would ordinarily charge for these parts, but is made with the view of our sharing in the cost of replacing the covers which have been broken in use. Although we tested the cast cover carefully before adopting it, we later found that too many of them broke in the hands of users to warrant continuing to furnish that style. To attach the new bar it will be necessary to drill four holes through the rim for riveting on the new lugs for clamping the bar to the can. The plunger-plate must be removed to insert the screw through the new bar, when it may be replaced. The first presses sent out had single lead screw 10 threads to the inch, while the later machines had double lead screw 8 threads to the inch. In ordering, be sure to specify for which style of screw you want the bar threaded to fit.

PAPER-BAG HONEY-PACKAGES — AN EXPLANATION.

Readers of GLEANINGS will please take notice that we have turned over to The A. I. Root Co. the paper-bag business. Our reason for doing this is that we were under difficulties as to printing and distribution. When we took up the matter of supplying bags to bee-keepers, for putting up extracted honey, we did not expect to have any demand worth while this year from eastern territory, and intended to put in a stock here and ship to western producers from Loveland this season, but we find a demand from the East as well as from the West, including Canada.

The Root Co. is situated nearer the factory than we, and has all necessary facilities for printing and shipping to bee-keepers, and can give a better service than we could, so we have decided to turn over the entire business to them so all orders now in our hands will be filled from Medina; and all those contemplating ordering will direct to The A. I. Root Co. instead of to us. The senior member of this firm would also take occasion to thank the many bee-keepers who have written kind and complimentary letters relating to his article, in GLEANINGS for March 1. That article and the little advertisement in the "Wants" column brought replies from the United States and Canada, and from Mexico, England, France, and Holland.

Loveland, Col. R. C. & E. AIKIN.

AIKIN HONEY-BAGS.

These are made of tough paper, straw color, printed in two colors, with blank space for name and address of producer or dealer, and extra-coated with paraffine. They have been thoroughly tested, and proven to be a success for candied extracted honey. See article in our March 1st issue for illustration and full particulars. We have four sizes which we can supply at the following prices:

2-LB SIZE, 5 x 7½.		5-LB. SIZE, 7 x 10.	
100	$ .80	100	$1.20
500	3.75	500	5.50
1000	7.00	1000	10.50
5000 @	6.60	5000 @	10.00

3½-LB. SIZE, 6 x 9½.		10-LB SIZE, 10 x 10½.	
100	$1.00	100	$1.50
500	4.75	500	7.00
1000	8.75	1000	13.50
5000 @	8.25	5000 @	13.00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names, $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10 000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2.00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

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This is a new book treating on flowering and ornamental plants in house and garden. It contains 300 pages, fully illustrated. It tells all about making soil for potting, about potting plants, watering plants, about insects, etc. There is also a very interesting chapter relating to small greenhouses. In fact, the whole book is more particularly for home florists and amateur greenhouse-owners than for florists. It is not only fully up to date but it is the best book on the subject for the money I know of. Price 90 cents; by mail, $1.00.

Convention Notices.

The Texas Bee-keepers' Association will meet in annual convention at the Agricultural and Mechanical College at College Station, Texas, July 7 to 10, inclusive, during the time of the annual meeting of the Texas Farmers' Congress. Cheap excursion rates on the railroads. A large crowd every year, and a jolly good time, as well as the meeting of your fellowmen, and the knowledge gained during the sessions. Grand exhibits of products. A good list of premiums offered. Bring your stuff, whatever you have.

Hunter, Texas. LOUIS H. SCHOLL, Sec'y.

DURING SEPTEMBER, 1901,

the United States Department of Agriculture imported a lot of queens from the Province of Bergamo, Italy, one of which was sent to me to be tested. For prolificness and industry she and her offspring are second to none, and I am now prepared to fill orders promptly with her daughters or the best golden queens at $1.00 each or $9.00 per dozen. M. O. office, Warrenton.

W. H. Pridgen, Creek, Warren Co., N. C.

Bred for Work Terrace queens have given best of satisfaction; bred from selected stock; best of workers; very gentle, and fine color. Warranted, $1.00 each; six for $5.00; dozen, $9.00. Tested, $1.25.

Harold Hornor, Terrace Apiaries, Mt. Holly, N. J.

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and one sample of the Stanley Cell-protector or Introducing-cage, for 70 cents postpaid.

Arthur Stanley, Dixon, Illinois.

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Full colonies, $4.00; three frames, with queen, $2.25; two frames with queen, $2 00; one frame, $1.50; queen, $1.00. **Mrs. A. A. Simpson, Swarts, Pa.**

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RED-CLOVER ITALIAN QUEENS, guaranteed to work on red-clover; bred for business, in full colonies: honey-gathering and wintering qualities are prime object. Untested, $1 00; tested, $2.00 to $4.50. After July 1, untested, 75c; tested, $1.50 to $3.50. Send for circular list. I. F. MILLER, Knox Dale, Pa.

FINE QUEENS FROM THE BLACK HILL APIARIES Golden and Long-tongue. Write for price list. Reference, G. F. Davidson & Son.

Carver & Mathis, Props., Verdi, Texas.

TEXAS QUEENS FROM LONE STAR APIARIES. We are now ready to furnish you queens from the best stock of any race. These queens are equaled by few and inferior to none. Write for price list

G. F. Davidson & Son, Props., Fairview, Texas.

Wants and Exchange.

WANTED.—To sell black and hybrid queens, 30 cts. each. MRS. J. W. BACON, Waterloo, N. Y.

WANTED.—To sell a Barnes foot-power saw.

H. A. JEPSON, Medford, Mass.

WANTED.—To receive your order with $1 00 for a queen that is reared with the business qualities in view. R. J. CARY, Norwalk, Conn.

WANTED.—Apiarists for the West Indies. Several of our correspondents want help. Write at once for particulars. THE A. I. ROOT CO., Medina, O.

WANTED.—To exchange or sell 50 colonies of Italian bees, for honey or cash.

DAVID DANIEL, Hawthorn, Pa.

WANTED.—To sell single-comb White Leghorn eggs for hatching at $1.00 for 26; $3.00 per 100.

J. P. WATTS, Kerrmoor, Pa.

WANTED.—To exchange for honey, or cash, 60-lb. cans, good as new, per case of two cans, f. o. b. here, 40 cents.

G. L. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—To sell my farm of 102 acres and 40 colonies of bees; old age, the reason; correspondence solicited. WM. G. SNODGRASS,

Montrose, Henry Co., Mo.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,

301 Huntington Ave., Buffalo, N. Y.

WANTED.—All the bulk comb, extracted, and section honey that we can buy in the State of Texas. We pay spot cash for honey. Write us now or when you have honey.

THE HYDE BEE CO., Floresville, Tex.

WANTED.—To exchange copy of *New York Herald*, April 15, 1865, in good condition, containing detailed particulars of President Lincoln's assassination. Best offer gets it. ELIAS FOX, Hillsboro, Wis.

WANTED.—Users of power grinding-mills to write for circular of automatic cut-off which automatically stops the mill when hopper become empty. Especially adapted to Aermotor windmills.

B. STRITTMATTER, Bradley Junction, Pa.

WANTED.—To sell at a bargain, a quantity of new comb-honey supers—8 and 10 frame complete, except sections—for standard 4¼ sections. Also a lot of T-supers and supers with section-holders which have been used; all in fine condition, and many have sections and drawn comb in them. Hoffman worker combs wanted. F. B. CAVANAGH, Galt, Mich.

WANTED.—To sell 100 eight-frame hives in the flat Armstrong New Reversible, about the same as Heddon hive; frames 5×7 inside self spacing, and hang on a right-angle piece at bottom: patent side to remove frames; brood-chamber in two sections; super same as hive only having six frames which hold four 4¼×5 sections, or frames can be used for extracting. $1 00 each in lots of ten. 800 patent reversible dovetailed frames 8½×17, 80c per 100; close on the Danz. frame in size. J I. CHENOWETH, Albia, Iowa.

WANTED.—To sell S. W. ¼ of S. E. ¼ sec. 26 range 26, Crystal Lake Tp., Benzie Co., Mich.: 40 acres just outside corporation of Frankfort; a nearly finished cottage of six rooms, a small stable, 25 bearing apple-trees, a few peach-trees. From front porch can be seen a delightful view of the little city of Frankfort, Lake Michigan, harbor steamers, etc Unexcelled as a summer home or a fruit-farm. Only a few hours from Toledo, Detroit Chicago, Minneapolis, and other cities Write Gen Pass. Agent of Toledo & Ann Arbor R. R., Toledo, Ohio, for pamphlet describing Frankfort. Cheap at $2200; if bought soon can be secured at $1100. Also for sale 160 acres, 15 miles east of Frankfort; only $2.50 per acre 25 acres ready for the plow. Write C. L. Linkletter Agent, Frankfort, Mich., or W. A. HOBBS, Owner Traer, Iowa.

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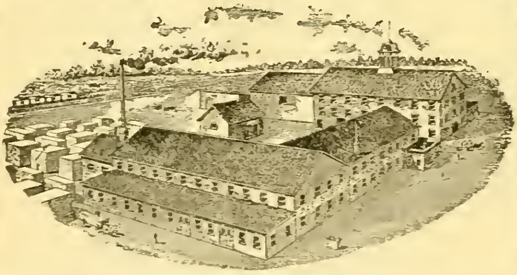

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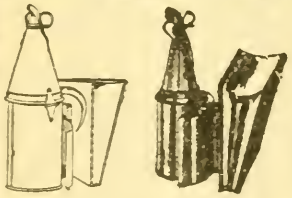

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Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
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T. F. Bingham, Farwell, Michigan.

Volume XXXI JUNE 15 1903 Number 12

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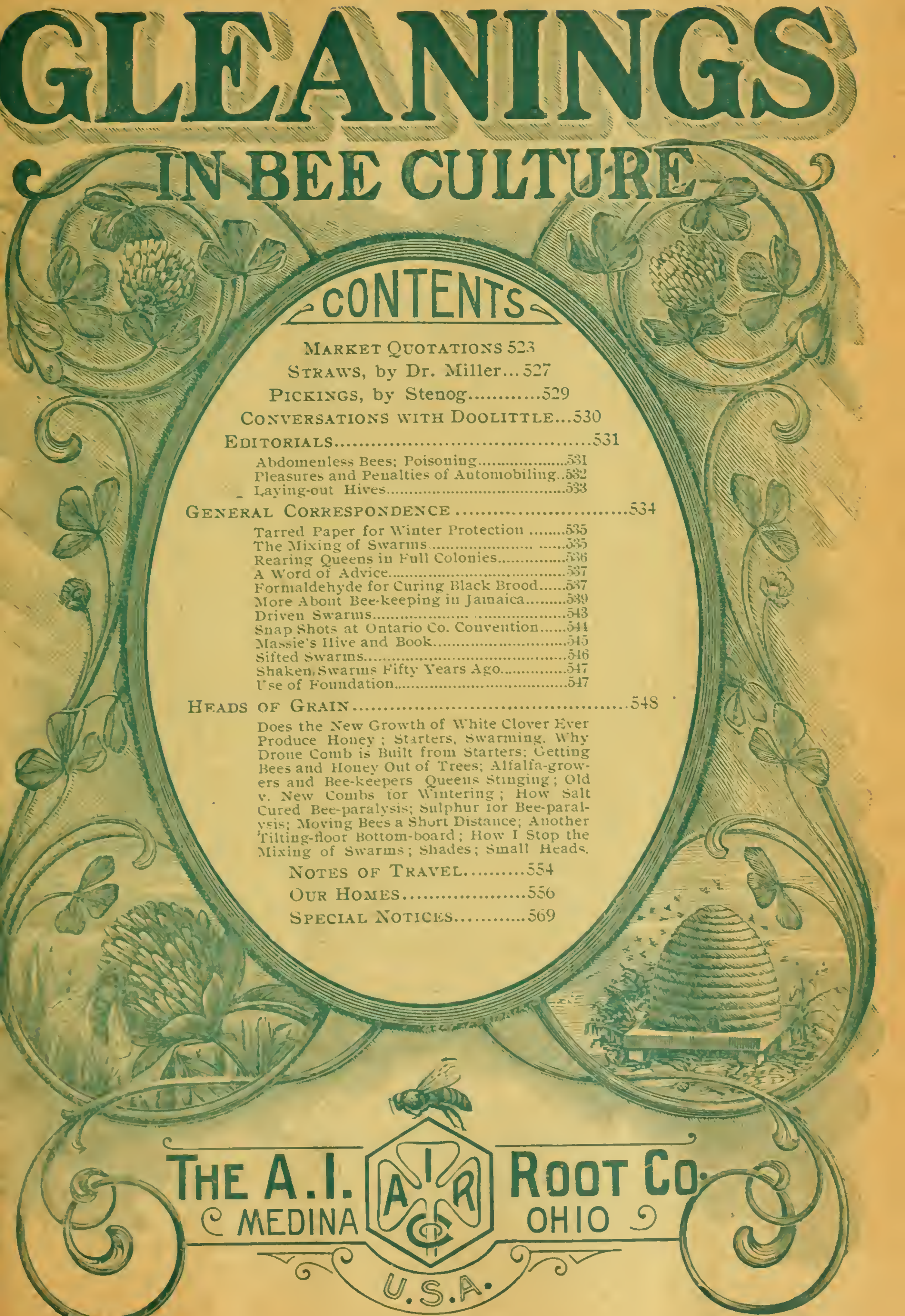

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Quick Shipments and Low Freight Rates.

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One-horse wagons,
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M. H. Hunt & Son

Bell Branch, Mich.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

SAN FRANCISCO.—Comb honey, nominal. Extracted water-white, 7; light amber, 6½; dark amber, 5. Beeswax, 28. E. B. SCHAEFFLE,
May 25. Murphys, Cal.

CHICAGO.—The market is lifeless; no movement except in extracted at low prices. Best grades of white extracted, 5½@6; amber, 5@5½. Comb honey is held at 15 for choice white; any thing not grading up to meet this requirement sold at 2 to 5 cts. less. Beeswax wanted at 32. R. A. BURNETT & Co.,
June 5. 199 South Water St., Chicago, Ill.

CINCINNATI.—We have reached the time when there are no settled prices in the honey market. Everybody is waiting to learn how the new crop will turn out, therefore we will sell or ask the old price. Fancy water-white brings 15@16. Extracted amber, in barrels, 5¼@5½; in cans, 6@6½; white clover, 8@8½. Beeswax, 30. C. H. W. WEBER,
June 8. 2146-8 Central Ave., Cincinnati, Ohio.

BOSTON.—Our market on comb honey is practically bare, but owing to the hot weather the demand is extremely light. Have not seen any new honey as yet. It can be readily sold at 17@18, if to be had. There is a fair demand for light amber extracted at 7@7½; best Florida honey bringing 7@8, according to quality. BLAKE, SCOTT & LEE,
June 9. 31, 33 Commercial St., Boston, Mass.

PHILADELPHIA.—Very little doing in comb honey now. Not enough sales to fix any standard price. Extracted honey moving off in spurts but little demand. We quote amber, 6@6½; white, 6¾@7½. Beeswax, 31. We are producers of honey, and do not handle on commission. WM. A. SELSER,
June 8. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—The supply of comb honey is about exhausted. The demand good. We quote as follows: fancy white comb, 24 sections, $3.50; No. 1 white comb, 24 sections, $3.40; No. 2 white and amber, $3.00@$3.25; extracted, white, per lb., 6@6½; amber, 5½. Beeswax, 25@30. C. C. CLEMONS & Co.,
May 28. 306 Grand Ave., Kansas City, Mo.

BUFFALO.—Very little demand for honey. Very few buyers will take any more of the old crop. The price is no object to effect sales; a big cut in prices would not cause it to move more lively. Fancy white comb, 14@15; A No. 1, 13@14; No 1, 12@13; No. 2 11@12; No. 3, 10@11; dark, 10@12. Extracted white, 6½@7; dark, 5@5½. Beeswax, 28@32. W. C. TOWNSEND,
June 10. 178, 180 Perry St., Buffalo, N. Y.

NEW YORK.—The honey trade is quiet, with plenty of stock, and considerable being offered. We quote comb, 8@10. California extracted, 6½@7; Southern, 4¼@5. Beeswax, firm, 30@31.
FRANCIS H. LEGGETT & Co.,
June 8. Franklin and Varick Sts., New York.

DETROIT.—Very little honey in the market, and prices rule about the same. Prices are as follows: A No. 1, 14@15; No. 1 dark, 12@13. Beeswax, 29@30.
June 8. M. H. HUNT & SON, Bell Branch, Mich.

WANTED.—To hear from producers of comb honey in California and Nevada. It may sound unreasonable, but we have probably bought, for spot cash, more comb honey than any firm in the United States, during the past three seasons. We can, no doubt, do you some good. THOS. C. STANLEY & SON,
Manzanola, Colo., or Fairfield, Ills.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

WANTED.—All the bulk comb, extracted, and section honey that we can buy in the State of Texas. We pay spot cash for honey. Write us now or when you have honey. THE HYDE BEE Co., Floresville, Tex.

WANTED.—Extracted honey; mail sample and state lowest price delivered in Cincinnati. Will buy fancy white comb honey, any quantity, but must be put up in no-drip shipping-cases. C. H. W. WEBER,
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FOR SALE.—We are sold out on alfalfa honey, but have ten 350-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls. fancy basswood at 8c; 60-lb. new cans, two in a case, 9c. E. R. PAHL & Co.,
294, 296 Broadway, Milwaukee, Wis.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
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FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
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To prevent the adulteration of honey.

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This particular strain is the progeny of selections from choice stock of Root's red-clover queens, and Moore's crossed with the very best of our own rearing.

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Gus. Dittmer, - Augusta, Wisconsin.

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Charles Mondeng, Prop.
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Perfect Workmanship and Finest Material.
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Stray Straws

By Dr. C. C. MILLER.

"THE FOOD given all larvæ for the first 48 hours of their existence is the same," Bro. Doolittle gives, p. 479, as the belief of the majority of our best bee-keepers. I think that's the first time I've ever seen it set at less than three days, the time set by scientists.

THAT LONG-FELT WANT in smokers, a nozzle that would never tumble off, nor get with age so it wouldn't go on, seems at last filled by the new nozzle-cover being sent out from Medina. It's a lot of comfort to be freed from the time-wasting annoyance of the old nozzles, and the new one promises to have staying qualities.

PHACELIA, which has now been in bloom in the window for some time, has a blue flower resembling the heliotrope, equaling it in beauty, strongly fragrant, although I don't think it has the same fragrance when grown as an open-air plant. It is wonderfully lasting as a cut flower, rivaling the carnation in that regard.

I'VE BEEN TRYING the corrugated bread-knife for cutting foundation, miter-box fashion. It works finely, and I seemed to be working faster than the old way. But when I timed myself I was surprised to find that I could work 50 per cent faster the old way with a pocket-knife and rules. But I've had much practice the old way.

WHEN YOU CLIP a queen, and try to let her run off your fingers on to the comb, she will generally persist in running up on your hand. Take a leaf or other small object, let her run up on that, then lay leaf and all on the top-bars. [Yes, she will persist in running up on your hand unless you can get her nose directly against the comb or bees.—ED.]

"I NEVER saw more white clover in the fields than now," says the editor. Same here; but the first days of June have been so cold and wet that bees could have only about a day in a week to work. [The same here. Notwithstanding such an abundance of clover, the bees do not seem to be working on it quite so heavily as when there has been less of it. But did you ever see so much *sweet* clover? The dry weather during the early part of May seems to have been just the thing to give it a boom. Last year sweet clover did not amount to very much because of the excessive amount of rain.—ED.]

THE DANGER of spreading foul brood by means of extracting combs is not light. I learn from *American Bee Journal* that Prof. Harrison advises disinfecting such combs with formalin. The expense is trifling. He says: "The combs of from 200 to 300 colonies could be disinfected at an annual outlay of about 20 cents." Think of it! 10 or 15 sets of combs insured for a cent! [This is a good point; and this fall, when we get a lot of empty combs, I am determined they shall be put through the fumigating-box. It would be well, perhaps, for all careful bee-keepers to fumigate their combs, to be on the safe side—that is, if the formalin treatment is effective in killing spores as well as the actual bacilli.—ED.]

THAT STATEMENT of the editor, page 480, that at the Los Angeles convention we can get a room at 25 cents a night, and best board at 25 cents, made me stop to think whether he could mean it, as there came up before me other national conventions where room (or, rather, bed) cost a dollar a night, and the bed — well, I think I'd just as soon sleep at home. [I am not sure that meals at 25 cts., and rooms at 25 cts., could be engaged at as high a grade of hotel during the week of the encampment of the G. A. R. at San Francisco. Los Angeles is about 450 miles from San Francisco. A large amount of railroad traffic will go through that city. Many people will stop there, with the possible result that rates will be advanced. But two years ago this

June I secured the rates above mentioned at the Natick House, a commercial hotel where some of the best traveling men stop. It was a fine new building, with nice clean rooms on the European plan. You could engage your room, and get your meals at the restaurant if you happened to be at the hotel; but if you did not, you did not have to pay for something that you did not get. Board and lodging are much cheaper in Los Angeles, considering quality, than almost any other city of its size and importance in the United State. California is a food-producing State, and every thing in the line of food stuffs, especially fruits, is cheap, even if some other things are high.—Ed.]

W. L. Coggshall, p. 485, doesn't agree with me that for rapid work a spaced frame is better, and then throws the Hoffman frame at me. Brother Coggshall, I wouldn't have thought that of you! The Hoffman frame works here just as it does with you, and I would rather have an unspaced frame; but a frame spaced with nails or staples is another story altogether. By the way, W. L., your frame is a good bit like mine, only I've gone still further than you, and there's more of mine.

The Jumbo smoker seems a little heavy; but for steady work it's a nice thing to have a fire-pot that holds more than a quart, so you can dump a good section of the chip-yard into it. When fairly started and fully loaded you can let it stand for hours with no fear of its going out. Then it has such a big base that you can leave it standing in the wagon when you drive from one apiary to another, and go right on without relighting when you reach the other apiary. I like it much. [I have come to the conclusion that the ordinary standard size of smoker, 3¼ or 3½ inches in size, is too small for a large apiary. A 4-inch barrel is none too large for the professional who keeps bees for the bread and butter he can get out of them.—Ed.]

The apiarist should heed the teaching of nature, and not violate the rule by putting an empty super under a partly filled one, says Hershiser, page 492. You're a pretty one, Bro. H., to talk about violating rules. Isn't it a gross violation of rules to work in sections at all? The rule is to work down, not up. Did you ever know bees in a state of nature to make a fresh start and begin building four or five inches higher up in a new place? And when an empty super is put under a partly filled one, isn't the "food and brood in as compact a space as" when the bees begin work in an empty super put on top? Just stop and think a minute. Isn't there just as much vacant space between the top of the upper super and the brood-nest in one case as there is in the other? By practicing the orthodox method you say the work will be distributed in undesirable proportion. When the bees are working in two supers, isn't the work distributed just as much whether the upper or lower super is the fuller? [What Mr. Hershiser doubtless referred to was that bees will not create a great space between the brood-nest and surplus. As you truthfully say, they build their first attachments of comb to the top of the log or box hive, and then work downward? The upper portion is filled with honey, and the lower part with brood. In the ordinary plan of tiering up, or, rather, tiering *under*, we create a big vacuum, so to speak, between the brood and the *already partially* stored honey. Now, then, do we ever in nature find a condition like this? When an *empty* super is put on top, no work has begun, and there is no vacuum to bridge over. The bees complete the work below, then go above.—Ed.]

Say, Ernest, I wish you'd interview Leslie Alexander, p. 487, and see if you and he can't come to some kind of a compromise about those 45 colonies averaging 70,000 bees. [Is it not barely possible that Mr. Alexander meant exactly what he said? Mr. Phillips tells me that we in America do not know what *strong* colonies are. If you will look over some of the illustrations in this issue, you will see that many of the Jamaican hives are two and three stories high. Years ago, when we used to buy swarms of the farmers, paying for them so much a pound, we secured quite a number that weighed between 9 and 10 lbs. Considering that there are on an average 5000 in a pound, we have 50,000 bees, and these swarms came from one-story hives, Simplicity ten-frame. Now, is it hard to suppose that a three-story hive, run for extracting, might average 70,000 bees? A tropical climate is more favorable to the use of large colonies than one like ours. The nearer we get to the equator, the larger the colonies, as a rule.—Ed.]

Putting additional supers always on top, and never having more than two supers on at any one time, will most certainly result in hurrying up the sealing and getting sections packed full; and if you want something for a show, sections sealed out clear to the wood, without regard to cost, that's the way to work. It will give a larger total of fancy sections, but I think I can get a larger total of *money* out of a whole apiary by giving all the earlier supers on top, and adding supers just as fast as the bees fill them. Have your sections all finished next the brood-chamber, and the work will be sooner done, and you will also have more tendency to swarming, and in most cases a little more tendency to dark cappings than when the sealing is done further from the brood-nest. I've had colonies working in five or six supers at a time, filling them with bees; and if I had tried to crowd them into two supers there would have been a loss. [Either you do not say what you mean or I do not undestand you. You say, "I think I can get a larger total of *money* out of a whole apiary by giving all the *earlier supers on top.*" Italics mine. That is Hershiser's plan. Don't you mean, putting the "earlier supers" *under* those partly drawn out? At all events, that seems to dovetail better with your argument later on. Now, it is possible that you are right—that you can get more actual money by creating a vacuum between the brood and honey than you can by Hershiser's plan of keeping brood and honey together all the time. This is a "nice point," as the lawyers would say, and I should like to hear from our practical comb-honey producers. To produce comb honey for exhibition purposes is one thing; to produce comb honey for the purpose of getting the most money is another proposition entirely.—Ed.]

Pickings from Our Neighbor's Fields

By "Stenog."

A French journal says a good filler for furniture made of mahogany or other dark-colored wood can be made by melting together 500 parts of beeswax and 125 parts of resin, and adding 125 parts of Indian red. It is very useful in plugging up holes or splits in furniture made of such woods.

* * *

"I love to steal awhile away" has been sung to another tune at the instance of General Manager France. The *American Bee Journal* says: "Mr. France reports having caught three persons guilty of stealing from an apiary of one of the members of the National, on May 16. They were given to the 25th to settle, or take results of the enforcement of the law. Two of the three, before the day was gone, came and settled, and it was thought the third would do so very soon." But there still remains the disagreeable feeling of being considered a thief in the eyes of the community.

* * *

A French journal, devoted to the interests of bakers, says, "In a little valley bordering on the Rhine the cutting of agates furnishes employment for a number of persons. Before cutting these stones they are soaked in honey for eight hours, and then in sulphuric acid for three hours. This operation gives to the stones a beautiful cloudy appearance which is greatly admired in the finished product. The grape sugar contained in the honey, by its combustion in the sulphuric acid, produces this discoloration. Every agate-cutter uses every year about 100 lbs. of honey in his workshop.

* * *

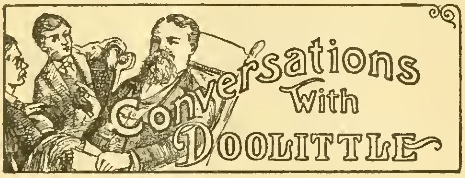
An exchange says a shipment of 600 barrels of honey recently left Mexico for New York. Last year Rambler showed that these large quantities of honey are designed for European markets, and simply touch at New York on the way. It hardly seems likely that so large an amount would be thrown on that one market, even as large a city as New York is, without our New York correspondents reporting it. But there is no disguising the fact that our neighboring republic on the south presents a vast field for the bee-keeper, and that it is being fast developed for that purpose. The correspondence at this office alone shows that.

* * *

The editor of the *American Bee Journal* gives us the following useful hints which every writer for bee-journals should observe. I've been wanting to say the same thing for a good while; but I rather dislike to tell folks what seems to be self-evident. The editor says, "The correct use of bee terms, at least a few of them, is a matter of more or less perplexity to those not familiar with them. An egg in a cell hatches out into a *larva*. *Larva* is the singular, *larvæ* the plural; one *larva*, two or more *larvæ*. *Larval* is the adjective; as, 'bees in the *larval* state;' *Nucleus* is the singular, *nuclei* the plural; one *nucleus*, two or more *nuclei*. When used as an adjective, *nucleus* is the word—*nucleus* plan, not *nuclei* plan of increase, no matter if a hundred nuclei are used." Some of our most experienced writers puzzle us at times by using *nuclei* and *nucleus* interchangeably.

* * *

A correspondent of the *American Bee Journal* says "the question whether bees are beneficial to orchards is somewhat problematical. Bee-men, who are quite accurate observers, are positive about it, and are, of course, in favor of the bees' usefulness to horticulture. Fruit-growers, on the other hand, often claim to find crops just as good, or even better, without the aid of the bees." Some years ago it was claimed by some that vegetable life is sometimes spontaneous. To prove it a certain culture of boiled stuff was put into a bottle which was then hermetically sealed. In a few days, sure enough, the culture teemed with life But that proved nothing more than that the boiling did not eliminate the first germs of life or else the bottle was not so closely sealed as to exclude germs. So with orchards. Considering the universality of the bee, what fruit-man can say that none have been in his orchards? Or if he knows there have been none, how can he prove that his crop would not have been larger if bees had been busy on the blossoms? If design in nature is evident anywhere, it is in the adaptation of the bee to the work of pollination. But that other insects may assist in that work is not denied. But what are they? and what reliance can be placed on them as can be on the bees? The writer in question shows very nicely how the blossom attracts the bee, and how the bee in turn scatters the germs of life from blossom to blossom. The experiment has been tried in many instances, always terminating in a good showing for the bees; and any orchardist who would object to bees on his trees during the time of blossoming seems hardly capable of correct reasoning.



PREVENTION OF AFTER-SWARMS.

"Say, Doolittle, can you tell me how to prevent after-swarms?"

"Well, I might tell you how I manage in this matter."

"I wish you would do this; and, besides, I wish you to go into the minutiæ of the matter, so that a 'wayfaring man, though a fool, need not err therein.' Last year I thought I could stop such swarms; but I failed, so I came over this morning to see if you could tell me just how to do it."

"After trying all the plans to prevent after-swarms given to the public I settled down on two plans as the cream of the whole, and will give them to you."

"But have you tried them yourself? I don't want any of the cream from the plans I tried last year, for I tell you they will not work, cream or no cream."

"The plans I shall give you are such as I have used with success for years, and I judge that what I use with success others can."

"Well, probably; but all may not be as used to such things as you."

"The only way I become used to a thing is by putting in practice what I read, hear, and see. Can't you do that?"

"Yes, I suppose so. I'll try, any way."

"The two plans are used in accord with what I wish to do with the parent colony. The one I will tell you about first is used where the old hive is to be carried to a new stand, while the swarm is in the air, on the principle of using the new swarm for the main dependence for comb honey, hiving the same on the old stand."

"Do you generally work in that way?"

"Yes, I prefer hiving the swarm on the old stand where natural swarming is allowed, and then placing the sections which are on the parent colony on the new swarm, as this gives the swarm the most of the working force. By thus doing, the bees do not stop work in the sections, and a good crop of section honey is secured."

"Glad to hear that. But excuse me for interrupting."

"To accomplish what I desire, I proceed as follows: As soon as the swarm is seen issuing from any hive I go to the shop, where I get a light box made for the purpose of carrying combs, which has previously been prepared, having the desired number of frames in it, taking it to the hive from which the swarm came, when the frames are set out of the box near the hive. I now take off the super and take out the frames of brood, putting them into the box. If the combs of brood seem to be well covered with bees, and the weather is warm, I shake a part of them off in front of the hive before putting the combs into the box."

"What do you do that for?"

"So as to get just as many bees with the swarm as possible, that a good yield of honey may be obtained from them, and also that as few bees may go with the combs as is consistent with the preservation of the brood, so that after-swarming will be prevented. If there are few bees on these combs of brood, or the weather is cool, I put all into the box, setting the box in the shade, and a rod or so from the hive, as soon as all of the frames of brood and bees on them are in the box."

"What do you set them a rod away for?"

"So that the returning bees will not go on these combs, as they will sometimes do where the queen has her wing clipped, and the swarm is hived on the returning plan. After the box is set away the frames brought from the shop are put in the hive and properly arranged, by which time the swarm will be likely to return if the queen has a clipped wing. If she was not clipped, then the swarm is hived in this prepared hive on the old stand, the same as any swarm is hived."

"What do you do with the combs and bees that are in the box?"

"An empty hive is placed where I wish a colony to stand, and these combs of bees and brood are placed in it, and the entrance adjusted to suit their wants, when they are left till the next morning. By this time nearly all the old or field bees have gone back to the old location, so that the young bees which remain are ready to accept any thing in the shape of a queen. They are now given a ripe queen-cell, a young virgin queen, or a laying one, just in accord as I have made preparations for them."

"Do you keep queens or cells on hand for swarming time?"

"Yes. I always prepare for any emergency by starting queen-cells a little before the swarming season; and when these are ripe a few nuclei are formed, and if more queens are about to emerge from their cells than I have nuclei for, the cells are put in cages provided with food for them, which are placed where the heat from any colony will keep them warm, and in this way they are preserved till I use them, or they become too old to be of use."

"I had not thought of keeping queens on hand to give to the old colonies having cast a swarm, but I now see it would be a good thing; and see how after-swarming can be prevented by this plan. But what about the second plan?"

"The other plan which I use is fully as successful as the one just given, but is used where I wish to treat swarms the way they are generally treated by hiving them on a new stand, in which case I proceed as follows: As soon as the swarm is hived I go to the old hive from which it came, and mark on it with a pencil, 'Sw'd, 6-10.' "

"What do you do that for? That is all Greek to me."

"This is to tell me at a glance that a swarm came from that hive June 10, should that be the date on which the swarm issued, and the one which was marked on the hive. If it should be on another day the date would be different; but the plan is the same, and suited to any day on which any first swarm is cast, or comes off."

"Yes. But what do you put it on there for?"

"Wait. On the evening of the eighth day from the date on the hive I listen a moment at the side of this old hive; and if swarming has been according to rule I hear the young queen piping, when I know a young queen has emerged from her cell, and an after-swarm will be the result if not stopped."

"What do you mean by piping?"

"This is a noise made by the young queen when an after-swarm is likely to issue, and sounds something like this: T-e-e-e-e, t-e-e-e, t-e-e, t-e, te. After you have once heard it you will never be mistaken as to what it is, for there is no other sound made by bees that resembles it in the least. If no piping is heard I do not listen again till the evening of the 13th day."

"Why do you not listen the next day?"

"Because the next rule is, that the colony swarmed when there was only an egg or small larva in the queen-cell, instead of the cell being sealed, as is generally the case, which allows the queen to emerge from her cell from the twelfth to sixteenth day after the first swarm. If no piping is heard by the evening of the seventeenth day, no swarm need be expected. But in nine cases out of ten, where after-swarming is to be done the piping will be heard on the eighth day after the first swarm is cast, so that this listening is no tedious job, for not more than a moment is generally required at any hive."

"When it is heard, what then?"

"When it is heard I go early the next morning and take every frame out of the hive, shaking the bees off from each in front of the entrance as I take them out, and return them again, so that I may be sure not to miss a queen-cell, but cut all off; for I know there is a queen at liberty, from the piping which has been heard. With all the queen-cells out of the hive there can be no more queens to come out, and thus all after-swarming is prevented. In these two plans we have something sure for accomplishing what we desire, under all circumstances which may arise."

Editorial
By E.R. Root

THIS is a peculiar June. We hear of drouths and destructive floods, of hot weather and cool. Now, June 11, it is cool and misty. Our bees are doing little more than to keep up brood-rearing.

ABDOMENLESS BEES; AN INTERESTING CASE OF POISONING DURING FRUIT-BLOOM AROUND MEDINA.

ABOUT the first of May, when spraying was being carried on by some of our neighbors, I noticed hundreds and hundreds of our bees, which had lost their abdomens, dropping down on the sidewalks, or on bare spots of ground. In fact, such bees were scattered all over everywhere, but they showed up more plainly, of course, on the sidewalks. These wriggling creatures, without their hinder parts, crawling round, keeling over and over, were, of course, very much out of balance. They appeared greatly distressed. They would rush around in circles, or tug with their hind legs at their abdomens as if there were some pain or distress in that portion of their bodies. I was nonplused. I watched the bees flying overhead, and noticed the fact that they were coming from the fruit-bloom, and I began to surmise that the trees off in that direction had been sprayed with poisonous mixtures, and that the trunkless victims on the sidewalk had come from them direct. After watching in the air for some time I saw a bee suddenly drop down, without its abdomen, and strike the sidewalk with a bound and a whirl. I looked up again, and finally saw a bee flying toward me suddenly drop, whirling over and over, and land on its back, without its abdomen. That this bee had been flying was very plain. When I first saw it, it was rolling over and over in the air. From some cause or other it had lost its abdomen while on the wing; and at the precise moment of losing it, it went keeling heels over head until it landed at my feet. I then called the attention of our apiarist to the matter, and we both got down on our hands and knees and watched. Finally I saw a bee tug away at its hind quarters until it actually, by the power of its hind legs, tore its abdomen asunder at one of the segments or rings. But in this case the separation took place, not at the waist, but midway along the abdomen. A further search showed that other bees were tugging away at their bodies, and had torn them loose in the manner described. My theory was, the bees that had just come from the field were suffering from poison, and that, while on the wing, they would tug away at their bodies with their legs, and finally effect the separation of the parts. We picked up a number of the victims with and without the abdomen. all of them apparently suffering. These were sent to Prof. Frank Benton, Apicultural Expert at the United States Department of Agriculture, Washington. May 5 he wrote as follows:

> *The A. I. Root Co.:*—I have received yours of May 2, with accompanying cages containing diseased bees, and have made several microscopic slides from the juices of the body, from the honey-sacs, and the bowel contents, but find nothing abnormal. I am quite unable to account for the peculiar actions of these bees, and the remarkable fact that the abdomen breaks in two in the manner you describe and as is shown in the specimens sent I have asked Dr Wiley to examine them for arsenic, and hope, if they have been poisoned by spraying he will be able to determine it.
>
> Washington, D. C., May 5. FRANK BENTON.

Supposing, of course, that another letter would follow, we waited till May 27, when he wrote, inclosing a letter from Dr. Wiley, under date of May 18:

> *The A. I. Root Co.:*—I take pleasure in inclosing herewith the report of the chemist who examined the bees sent by you under date of May 2, which you suspected had been poisoned by taking juice sprayed on fruit-trees. FRANK BENTON.
>
> Washington, D. C., May 27.

The letter the doctor wrote to Prof. Benton is as follows:

> *Mr. Frank Benton:*—We have made an examination of the two samples of bees forwarded to us under date of May 5 and 11, and find that arsenic is not present in either sample, while small amounts of copper are present in both. Is it not possible, perhaps, that the bees were poisoned from Bordeaux mixture, and not from an arsenical insecticide? You make the following remarks in your letter of May 11: ' If it is possible to find any traces of arsenic in the abdominal cavity of these bees, it would go a long way to settle the point whether the spraying of fruit-trees does result in the death of honey-bees." In connection with this we beg to state that we examined some bees last year that were said to have been poisoned by spraying the trees with Paris green. Arsenic and copper were both found. H. W. WILEY.
>
> Washington, D. C., May 18.

The letter of Dr. Wiley apparently unlocks the mystery of the whole situation. You will note that, while he does not discover arsenic, he does find that the bees were poisoned with small amounts of copper. Blue vitriol, the main ingredient of the Bordeaux mixture, or, as the chemists say, copper sulphate, is used now very largely for spraying. Indeed, A. I. R. says that the Bordeaux mixture is used more commonly than the mixtures of Paris green. Our neighbors were probably using the blue-vitriol solution, with the result that our bees were poisoned. It occasioned so great pain that the victims were actually dismembering themselves on the wing and on the ground, killing them by the thousands. I would not have deemed it possible that a bee could literally tear itself to pieces, as we might say, in the manner I actually saw on the sidewalk.

I now recall that every spring during the spraying season I have seen bees by the thousands lying scattered over our sidewalks, with their abdomens off. Supposing this was the work of birds or insects, or that the bees had been stepped on by some of the numerous children playing on the sidewalk in question, I gave very little heed to the matter. It is doubtless true that others of our subscribers have noticed the same thing in the region of fruit-trees; and if they have, I hope they will hold up their hands. Let us ascertain how general this kind of poisoning has been. It seems to me the fact that Dr. Wiley, the Chief Chemist, *found poison at all* in the bowel-sacs of the bees, *is the best kind of proof* that the bees were suffering from blue vitriol.

You might suppose that, in our neighborhood, our farmer friends would spray only before and after blooming-time; but so many of them have the idea that A. I. Root scattered sweet clover and dandelion all over this vicinity, it is doubtful whether they would heed any suggestions along the line of saving our bees. Yes, some farmers are not aware that sweet clover is scattered all over the United States, by the dirt roads and railways; that it is a plant of comparatively recent introduction; and that the dandelion which grows so thriftily in and about Medina does so because our bees thoroughly pollinate every flower, with the result that the seed matures and germinates readily when it falls to the ground.

"THE PLEASURES AND PENALTIES OF AUTOMOBILING."

In the May issue of the *Bee-keepers' Review*, Mr. Hutchinson refers to a ride he had with me on some of the common roads near Medina in my "auto." He gives a very fair statement of his experience, especially of the "penalties," one of the worst of which was the annoyance in the frequent meeting and passing of frightened teams, and that there had to be stops, sometimes, to let a fractious horse by. Medina is a country town, and automobiling is somewhat of an innovation in the vicinity. It was to be expected that something so novel in the shape of a "red devil" running up and down the streets would frighten the steady old farm horses, especially when out alone; for it is a well-known fact that a horse in a city, or where there are many horses together, will pay but little attention to a novelty. But I am glad to say that those in and around Medina are becoming more and more accustomed to my vehicle, and it is very seldom that I have to stop my machine now.

I have seen the day when a bicycle would scare a horse far more than an automobile. What could be more frightful to a horse than to see a man or devil strung up in the air, as it were, kicking, and coming toward him at a rapid pace? but now it would be hard to find one that is afraid of a bicycle; and yet how distinctly I remember that day when I had to get off and hide my machine in the grass every time I encountered a farm horse! The automobile has somewhat the appearance of a buggy, except that it is horseless. So far as it looks like an ordinary conveyance it is less strange to the passing horse.

Well, when Mr. Hutchinson was with me I was learning some of the eccentricities of the new vehicle, and some of the "penalties" seemed to stand out more prominently then than they do now. The steering-lever worried me not a little. I would steer too much, with the result that the carriage would sway right and left. Now the steering is automatic, just as it is in the case of the bicycle. All the sensation is that the vehicle keeps the road, without any worry or strain on my mental gear. Another thing that bothered me was the control of the power. Sometimes the engine would get to "racing;" then it would hum like a thrashing-machine, and the carriage would go pounding over the roads with fearful jolts every now and then. Now the question of engine control is likewise automatic. When I desire to stop suddenly, the machine slows down rapidly, without any mental calculation on my part. At first I would get "rattled." I did the wrong thing at the wrong time.

Yesterday I had the pleasure of riding after my father's driving, in a brand-new machine, the Olds. It was somewhat amusing to see him go through the same awkward moves I did, of steering too much, of giving the engine too much speed, of doing the wrong thing at the wrong time. But it was not long before he made himself a part of the machine in that it would respond to his every wish.

The penalties are fast disappearing; and the *pleasures* — well, I do not know of any more glorious fun for me. Sometimes I ride away up into the night; and the thought that there is no horse to tire, and that it is simply a question of consumption of gasoline at the rate of half a cent a mile, and a little lubricating oil, is comforting indeed. On a hot day there is no tired, sweaty horse to call out one's sympathy. A mere pressure of the button gives absolute control of the speed and power, and one feels himself flying on the wings of the wind. Come again, Bro. H., and we will try to give you a better taste of the real pleasure.

TOO MUCH OF A GOOD THING; LAYING OUT HIVES IN SYMMETRICAL ROWS SOMETIMES A MISTAKE.

It is a mistake to have a queen-rearing yard laid out in straight rows, and have all the grass and weeds cut out. Hives should be located in groups of one, two, three, four, and five. Do not have any two groups of the same size and appearance near each other. If there is a group of five hives here, make the next group of two; another group of four. Make each group different from the adjoining one, and, if possible, put near some distinguishing object like a tree or a bush. One group can have a large tree, and another a small one. If tall weeds grow up near the entrance, all the better. While they obstruct the flight slightly, they help young queens in identifying their entrances. And, by the way, we made a mistake in Cuba in cutting away all the grass in front of the hives, and in putting them in neat straight rows. The native Cuban bee-keeper lets the grass grow. His hives are laid out very irregularly, with the result there is much less robbing than there would be if they were all laid out with perfect regularity in rows, and entrances pointing in one direction. In an apiary of the last-mentioned kind, it is no wonder the bees become confused, and that robbers get a good start before the inmates of the hive realize what is going on.

There is another point: It takes a great deal of time to keep the grass and weeds down. If I were running for honey and money only I would keep the entrances, the paths, and roadways clear, and that is all.

You will ask why you would not find that condition of things at our home yard here in Medina. Simply because it would offend some of our visitor friends. They expect to see something like a park. But take a trip up to the Harrington yard, and you will find things as they are in Cuba.

THE HANDIEST BEE-BRUSH.

Dr. Miller is quoted by the *Review* as saying there is nothing better for brushing bees than some growing plant, like asparagus, sweet clover, goldenrod, or aster. That is the kind of brush I use — not because it is better but because it is so get-at-able. I reach down to the nearest bunch of weeds or grass, and grab up a good handful — enough to make a good strong sweep. When I am through with it I simply throw it away. But where there is shaking and brushing all day, as during extracting, a special brush for the purpose — one that can be swashed in water — is better than a scraggly mass of weeds.

In a recent issue of Gleanings I referred to the fact that Mr. Hutchinson was foul-brood inspector for Michigan, and that he was doing a good deal of his editorial work on the cars. Some of his later items are particularly meaty. Here it a sample:

> A lining of damp paper put into a vessel into which melted wax is to be poured will keep the wax from coming in contact with the vessel, hence there will be no dish to clean up afterward. Strange as it may seem, the paper will also peel off readily from the cake of wax. Neither will the cake crack while cooling, as it is not stuck to the walls of the dish. Mr. H. R. Miller, of Fulton, Mo., wrote me about this.

General Manager France is having his hands full. In eight different places in the United States bees have been declared to be a nuisance. Mr. France is looking after all cases, and showering in doses of truth and fact. There is one case of adulteration at Denver that is receiving his attention.

Mr. H. H. Hyde and Miss Lizzie E. Adams, of Floresville, Texas, are to be married on the 18th of this month. Mr. Hyde is one of our occasional contributors; and although a comparatively young man he usually has something valuable to offer. Gleanings extends its congratulations to the young people.

GENERAL
CORRESPONDENCE.

TARRED PAPER FOR WINTER PROTECTION.

Answer to Editorial Comment on Page 371.

BY ARTHUR C. MILLER.

Mr. Root:—You have completely missed my point of value in my paper wrapping for hives. Your experiments have scarcely a thing in common with mine except that each contained the ingredients of bees, wood, wax, paper, honey, and nails. You tied paper around a hive, and then *covered it with a close-fitting winter-case.* You got thereby a very poor "chaff hive." I do not wonder that the bees died in it.

I took a single-walled hive, laid over it a sheet of tarred paper, folded it down and about the hive, and tacked strips of wood around the bottom edges. I thus secured a water-proof and practically air-tight wrapping of black. When the sun shone, that black surface absorbed the heat in a remarkable degree. Even during protracted cold spells the snow would melt from such covering, while it would remain on the other hives, both single-walled and chaff. The heat thus gathered warmed the hive through and through, so the bees could and did safely move about. When the sun was gone, the warm wood and air within that black covering yielded their heat very slowly.

My theory was this: On pleasant days the black-paper-covered hives would absorb, during the time the sun shone, as much heat as they would lose by radiation during the hours of its absence. Furthermore, that, even if it gave it up in less time, the loss would be so gradual that the bees would be able to re-form their cluster before the temperature got too low. Also the bees would have had the advantage each week of several hours of sufficient heat to enable them to move all they needed to. Practice proves the correctness of the theory.

The entrance, always wide open, being at the bottom, did not appreciably affect the results. Days when the wind blew strongly into or across the entrance, the temperature did not rise so much, and the bees remained closely clustered. You may argue that such warming-up would induce the bees to fly when it was too cold without. The facts are, it *didn't.*

I do not claim that such protection is sufficient in *all* climates; but I do believe it is by all odds superior to chaff or sawdust; and that, where bees can be wintered out of doors at all, they can be successfully and profitably wintered with no other protection than the tarred paper about their hives.

The tarred paper has two or three disadvantages. It is dirty to handle in putting on; is not good the second year; and the nailing-on of strips to fasten the bottom edges tight is undesirable. I have been looking for some sort of close-woven water-proof black cloth that is reasonably cheap. Enameled cloth is too expensive and too short-lived.

As a moral to adorn the tale, let me say that, had you grasped the *why* as set forth in several of my articles on the subject, you would hardly have made the mistake. Look for the *whys.* Find the *why*, then the methods will create themselves.

The general attitude regarding chaff packing has been as if the whole brood-chamber were of the same temperature as that of the cluster. If such were the case, then we might correctly infer that walls which would prevent the too rapid radiation of such heat would be desirable. But such is *not* the case. The cluster is, say, 65° F.; the air about it and the frames and combs outside of the cluster are almost the same temperature as that of the outer air. The chaff walls keep this air, frames, combs, etc., *uniformly cold.* Bright sunshine has precious little chance to heat it.

Providence, R. I.

[Apparently I did miss the point of your paper wrapping; but in reality I had practically the same thing in mind, as I will presently explain. I used newspaper wrapping around the hive, then slipped a thin winter-case of lumber over it, making a snug close fit. But mark this: the winter-cases were painted red, and red is almost as warm a color as black. Contrary to our experience, the red had a decidedly detrimental effect in our locality by inducing the bees to fly out when they should have stayed inside. The winter's sun in a protected inclosure will warm up a hive quite a considerable, if it be painted red or black. Our experience has shown us that white is a better color the year round. The tarred paper, being jet black, would draw more of the sun's rays, with the result that it would warm the bees up, thus aggravating the very trouble that I speak of.

I may cite you to a very familiar illustration in poultry-raising. The time was when it was considered best to have much glass in poultry-houses, the glass facing the south, of course. The object was to draw the sun's rays during bright days, warming up the coop. The effect was to make too great a change in the temperature from day to night, resulting in injury to the fowls. Now the practice, I understand, is to have no more glass than is absolutely required for light, and to paint the buildings white instead of a warm color as formerly.

The footnote above was sent to Mr. Miller, who writes:]

"The proof of the pudding is in the eating." Most of the colonies which were protected with the black paper now have work well under way in the supers (May 11);

while of those not so protected, but two colonies are so employed.

Bees within a black-covered hive *may* possibly fly unseasonably, but they *don't.* Such flights are, as a rule, due to other causes than warmth within the hive. I have often seen the bees moving about the entrance, and now and then one will hover about outside; but beyond this they seldom go—never harmfully so.

The example of the glass in poultry-houses does not fit. The glass permits greater heating (and more rapid), and *excessively rapid radiation* after the sun has gone. Also in such glassed houses fresh air was sadly absent. I've been through the mill, and made a success of it (poultry culture) before I gave it up.

Please try my whole formula before you say black paper is "not good." The formula is, plenty of bees, sound queen, abundant stores, *early preparation*, and black wrapping. But I may be mistaken. Two years is a short test. A. C. M.

[The point I tried to make was that extremes of temperature are detrimental to bees as well as to poultry. A cellar that is subject to a variation in cold, as is well known, will not winter bees as well as one that maintains an even degree.

While you take some account of locality, you do not consider that beginners may be misled. Where you are, it is milder than in and about Medina; and Medina is much milder than Marengo, Ill. A varying temperature that might not be disastrous or harmful around Providence might be decidedly so for another locality. I still feel that the average beginner in the average locality should go slow in applying a black covering, as you describe, around the hive, expecting that such protection will be equal to the regular chaff-packed hive. I base my statement, not on two years of experience on this question, but on a period of five or six with this kind of protection, and on extended travel among the bee-keepers where I have had a chance to see the results of the various kinds of winter protection. And let me say right here, I have known it to be a fact for bees to winter well in the locality of Philadelphia, and Washington, D. C., packed in the manner you describe. The whole question simmered down to its last analysis is one of locality.—Ed.]

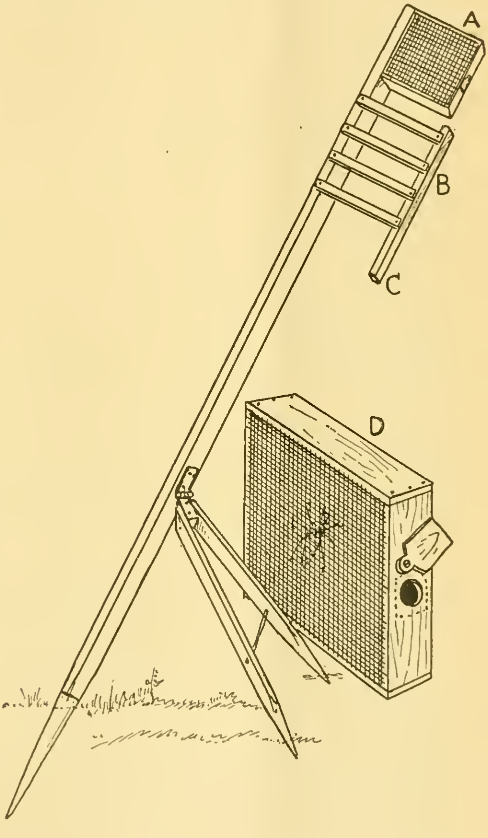
THE MIXING OF SWARMS.

How a Texas Man Divides up the Bees with a Decoy Queen into Several Hives; a Practicable Plan.

BY H. PIPER.

After reading friend Wm. McEvoy's article, page 288, I thought I would give a plan I had, as I do not believe in hindering a colony from casting a prime swarm when they decide to do so. That is nature's way. After-swarms are what I call "fever swarms," and I prevent that without pinching out cells either.

I have no patent on my plan. I have a cage about the size of a section, wire cloth on sides, and a hole in one edge that you can close up so as to stay closed. I put a queen (some old worthless one) in this, and fasten her in securely; no bees with her; then I fasten this securely on the end of a 1×3 batten, 8 or 10 ft. long, length to accommodate your condition. On the side of the batten I fasten a strip four or five inches away from it by cross-pieces, ladder fashion; the strip should be 18 or 20 inches long—see drawing.



Now, this is permanent, queen and all, and in my case the one queen has done me for four or more weeks. The bees feed her, and, when not in use, I hang it up in a tree; but if likely to rain I take it down and cover up.

The ladder-work fixture on the side of the pole is for the bees to cluster on.

Now, you must have the bottom end of the pole sharp, because you will often want to stick it into the ground; but prop up securely, so the weight of bees will not bear it to the ground; and if your swarm or swarms are high up, use the hook or projecting piece to attach to a limb.

We are now ready to use the outfit. We

will say that from Nos. 3, 5, 21, 32, swarms issue, and they all go together. We will just catch the queens (mine are clipped), and put them under a cup glass or in a cage, and set it down in front of the hive from which each came; then we will remove the hives 5 or 6 ft. away, and put empties with comb or foundation in their place (I generally give a frame of mostly young brood). Now we are ready for the fray. We will take the caged queen on the pole, and insert it in the bunch of bees, and shove it well up to the limb, gently of course; and when we think we have enough we will gently withdraw it and carry to one of the hives, and lay it sidewise close up to the hive, but not so close as to clog the entrance and start some of the bees in. If they do not move of their own accord when they start in, pick the queen up, carefully of course, so as not to injure her, and put her at the entrance and see that she goes in. They will soon be all moving like a flock of sheep. Then just raise your stick up a little and give it a quick jerk, and it is done, and all is well. Go back to the bunch and do the same way until you come to the last lots; then get what you can on your pole, and place it so that the end of the pole with what bees you can get that way are only a few feet away (the nearer the better, though I have managed them at 10 feet away, long range), and in plain view. Now you want a long pole to give the limb a sharp punch to dislodge them, and agitate the limb for about a quarter of a minute, or until they are attracted to the cluster on the pole. In case of a large limb or other thing they may sometimes settle on, use the smoker and bee-brush, gently at first, until you get them off; then apply smoke until the place is untenable.

This is the best way for hiving, and no sting. Somebody, I think, I hear saying, "Why, those bees will not stay there long enough for you to hive them that way." Let's see. You have had that old queen (in cage) in that bunch repeatedly. They have smelled her, and they will stay until you take them down, if you are not too slow—two hours, I should think, and I have had eight swarms in a bunch at once. Then, again, it is not safe to depend on the swarms (if only one) returning to their hive after they find their queen not with them, because some are liable to go to other hives; and if you have one swarm, and think it is only one swarm, and they will come back, another swarm may issue while waiting, and there may by chance a virgin have slipped in. In that case you know the result; also if several swarms issue at once, and are left, they are more than liable to go all together to one hive, and the rest of your hives stand empty. This plan *will* work, whether a swarm has a *queen of any kind* or not.

Calaveras, Tex.

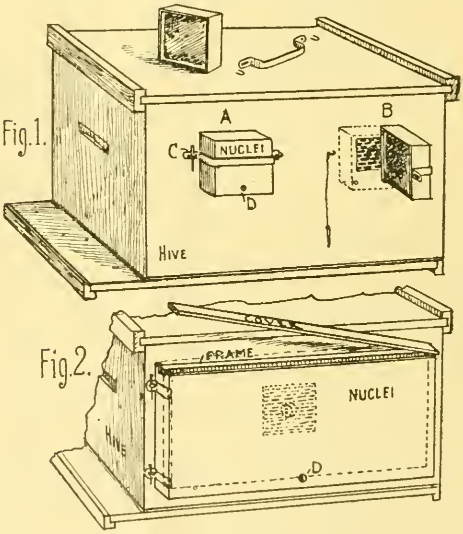
[Some one else, some years ago, told how a decoy queen might be used for catching swarms. At that time the scheme was considered to be entirely feasible, but of late but very little has been said about it. I have used it myself to a limited extent, but believe bee-keepers might employ it to considerable advantage in large yards where there is a tendency for more than one swarm to come out at once.—Ed.]

REARING QUEENS IN FULL COLONIES.

Running for Extracted Honey.

BY D. R. KEYES.

Raising queens and producing extracted honey from the same colonies, and at the same time, can be done by boring an auger-hole in the side of a regular extracting-hive (or in both sides if you desire to run three nuclei to each colony). Over the hole, inside and out, tack a piece of perforated zinc, and then place against the holes one-frame nuclei, or the little section-box nuclei, like Swarthmore's, with a corresponding hole in the side to fit up snug against the hole in the colony. When you have your cells ready, just before hatching, form your nuclei by placing brood and honey in the little nuclei, and place them in position, and, after a few hours, you can give the ripe cells, and the queens will hatch and go out to mate at the proper time from a small opening in the nucleus box itself. You can continue to take queens and supply cells just as you would from any nuclei, and can go on working your colonies just as though the nuclei were not there. The little nuclei will be kept supplied with bees



THE SWARTHMORE-KEYES QUEEN-REARING NUCLEI ATTACHED TO FULL COLONIES.

Fig. 1. A, B. nucleus boxes, one in contact with hive, the other swung to one side to show hole covered with zinc.

Fig. 2 is a thin box to hold full frames; frame, hole, and perforated zinc in dotted line.

from the colony, through the zinc; and when you wish to discontinue a nucleus, all you have to do is to put the bees and brood in the colony, and stop up the hole in the colony with a wooden plug or cork. The old bees from the colony will come into these nuclei, and protect them against robbers.

I prefer my little hives or nuclei made with one side off instead of the hole, as this puts the bees in nuclei closer to the hole in the colony; but if this is done you will have to be careful to fasten them against the hive by some means, which *should* be done any approved way. D. R. KEYES.

Wewahitchka, Fla.

[Your plan seems to be essentially the same as Swarthmore's, illustrated in our issue for Sept. 15, 1901, page 743. That the plan will work seems probable, and we are interested enough to give the matter a trial in our yards this summer. The fact that both you and Swarthmore pronounce it a success would seem to indicate that others might have confidence in it. The feature that commends itself to the average producer of honey is that he can go on producing his regular crop of honey and still rear a few queens for his own use, without in any way interfering with the work of any one colony.—ED.]

A WORD OF ADVICE FROM THE OTHER END OF THE LINE.

Comb Honey too High-priced; Extracted Honey Liable to be Adulterated.

BY KIT CLOVER.

You people sit down and chat together, month after month, about how to raise bees, and how to "shake" them after they are raised, and how to get the honey after they are shaken, and all that. No doubt it is all interesting to you; but, meantime, what of us? Here we sit, at this end of the line, the consumer's end, and here is the way the matter stands. Suppose I have a house and six children, husband, a boarder, and myself. We all like honey. We want honey. We are fond of hot biscuits and honey, and I propose to make the biscuits, and go out to the grocer's for the honey.

"Twenty-two cents a pound."

I look at the pretty little section of nice honey, and estimate it. There are nine of us, and one section will not give over four "helps," therefore I must get two sections, at 44 cts., and go without myself, or get three sections at 66 cts. This makes a rather expensive relish, and, on a small salary, can not be indulged in often. So I betake myself to the counter of extracted honey. These are attractively put up in cans or bottles. Let me say right here, all honey should be put in jars. The housewife will buy twice as readily knowing the pint or quart Mason jar will do for canning fruit, while the ordinary bottle is a dead loss. But now comes the pick. Who of us all can *know*, when we buy a jar of honey, that we are not getting glucose? This is where our trouble is, and this uncertainty prevents the sale of tons of extracted honey. Can't you get up in your might and procure such stringent laws as shall make it a crime to put up or to sell glucose or any kind of an imitation as pure honey? Make the penalty heavy enough, and I think the law can be enforced.

Please, Messrs. Beemen, when you sit down to talk, make this the subject of your thought until you sweep the spurious stuff out of the market.

Brooklyn, N. Y.

[The National Bee-keepers' Association, together with the local State organizations, is doing much to get laws that will make the adulteration of honey a crime. The National has already at different times sent delegates to the Pure-food Congress at Washington, and the last Congress of the United States came very near passing a national law that would have stopped traffic in adulterated honey between the States. Through the influence of organized effort in Illinois, New York, and Colorado, anti-honey-adulteration laws are in force. Ohio had already a good law before the bee-keepers of our State had taken any hand in the matter. California has a good law, but the officials for some reason are not disposed to enforce it. Bee-keeper and consumer alike are interested in pure food, especially in pure honey, and they should at once ally themselves with organized bodies of bee-keepers.—ED.]

FORMALDEHYDE FOR CURING BLACK BROOD.

How to Save the Brood, and How to Render the Combs Infected Safe for Use in Healthy Colonies.

BY G. W. HAINES.

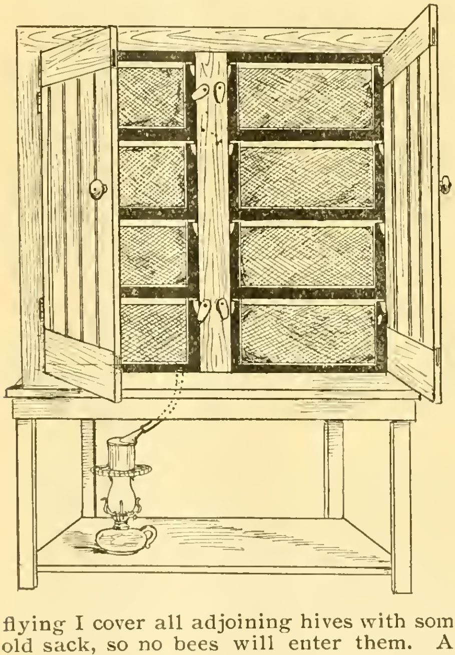
I have read several pieces in GLEANINGS on formaldehyde for curing black brood. I have used it for two seasons; so I will send in my experience with it.

Formaldehyde can be had at any drug-store. If not in stock they will get it. I used it with a spray until I was satisfied it was no cure. Our State bee-inspector, Charles Stewart, asked me to make some trials of fumigation with formaldehyde; so I sent to A. B. Huested & Co., of Albany, N. Y. For $1.25 they sent me a kit for fumigating, and instructions. I made several trials that proved all right. I found my kit too small, so I made one. I will try to describe what I have now.

I made a large box or cupboard, tight joints, two doors that fit tight all around; where the door closes up I put in a strip of heavy felt. When the doors are closed it is as nearly air-tight as I could make it. It is just wide enough to take two tiers of frames, one in front of each door, and four rows high, twelve in each row. When full it holds 96 frames.

To fumigate I use a common bracket lamp. I set on top of the chimney a small wire rack, about ⅝ inch high. On top of this wire rack I put a machine oil-can that holds about a pint; put a rubber tube on the spout of the can, run the end of the rubber tube in a hole at the bottom of the cupboard; put in the oil-can about half a teacupful of formaldehyde; light the lamp, turn it just high enough to boil the formaldehyde; then shut the doors tight. I have the lamp burning about an hour, or a little longer. By that time the formaldehyde is nearly boiled away. Leave the doors shut 24 hours, and there will be no black brood, bees, nor moth-larvæ left. Open the doors, and air until they smell all right, about half a day, and they are ready for use again.

Last season I put two very light colonies down in another lot, and used them to stack on the best frames of brood. As fast as I found a diseased colony I shook them out on foundation at evening; just as the bees stop flying I cover all adjoining hives with some old sack, so no bees will enter them. As soon as they all get in I put on a piece of queen-excluding zinc to keep them from absconding; then stack the best frames of brood on one of the light colonies. Last season I had them 5 to 12 frame hives high. As soon as the brood would all hatch I shook the bees off, fumigated the combs, and used them again; and I kept on stacking as long as I could find any disease.



When the swarms I use to stack have too many bees I shake out a swarm on foundation, and set them in a new place. Some of the worst-diseased combs, after fumigating, I marked on the dates, and set them in the center of a healthy colony, and found them solid full of capped brood.

To-day, Apr. 20, I have 92 colonies. A near neighbor that had more bees than I had, when black brood struck us, lost the last of his last winter, and many more have one, two, or three left.

Last fall I fumigated all of my extracting-frames, and all section boxes that had been on the hives, before putting them away.

Mayfield, N. Y.

[The wire rack to which you refer is, I judge, a little device to be fitted on to a lamp-chimney that can be bought at the stores for heating a cup of milk for children at night when the fire is out. We had such an arrangement when our boy was a baby, and we found it to be very effective. If it can not be obtained, any arrangement that will hold an oil-can about half an inch above the top of the glass chimney would answer. The oil-can shown in the illustration is probably not the same thing that Mr. Haines has in mind. I judge that he uses a spring-bottom oil-can, with a *perpendicular* snout, such as can be obtained for 10 or 15 cents at any hardware store. An ordinary rubber tube can be slipped over the snout; but it should first be cut off to give a larger opening.

Apparently it is important to have the fumigating cupboard or box as nearly airtight as possible. Mr. C. H. W. Weber, of Cincinnati, who has had considerable experience, says that an ordinary hive is not tight enough. He recommends putting the combs in hives, the hives inside of an airtight box, then generating gas and forcing it into the box.

As Mr. Haines recommends, combs containing the disease may be stored in upper stories above perforated zinc over a strong colony. What brood is healthy can hatch out. The combs can then be fumigated as directed. We shall be glad to get reports from our subscribers who are in position to test this method of cure.

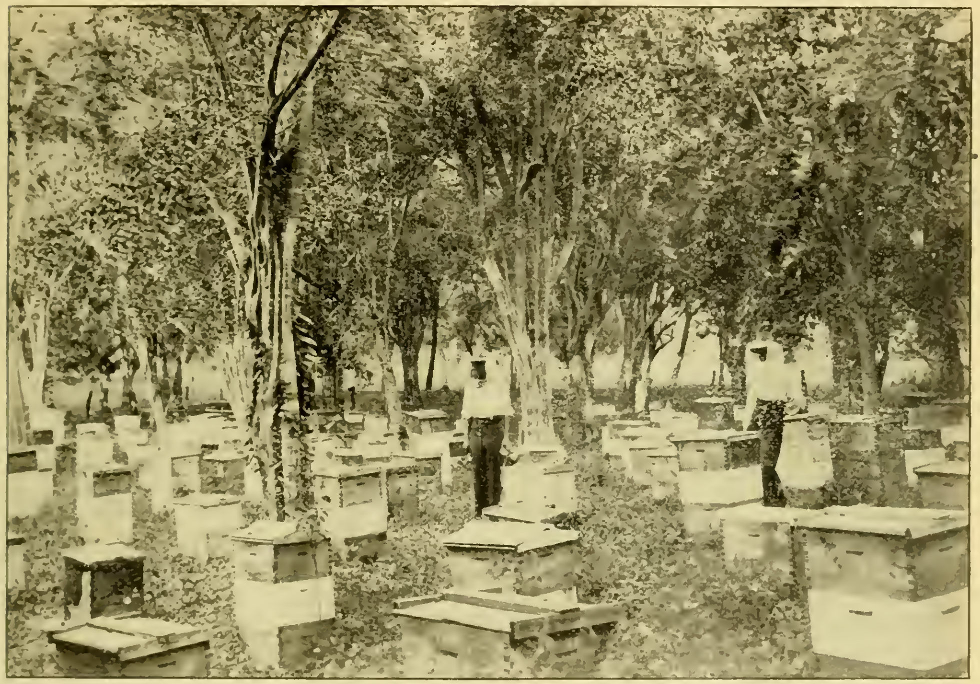
So far I do not know of a case where, *when the gas has been properly applied*, it has failed to disinfect the combs.

If more convenient for our subscribers, they can order their fumigating apparatus and chemicals of C. H. W. Weber, Cincinnati, O. The chemical comes in two forms —fluid formalin and solidified formalin. The former is in 1-lb. bottles costing 50 cents; postage 40 cents extra. The latter is in ounce packages costing 75 cents; postage 5 cents. The solidified formalin is much more concentrated and cheaper — one ounce of it being equivalent to 3 lbs. of the liquid article. The generator, including ½ ounce of the solidified formalin, costs $1.25; postage 20 cents. Send your order to Mr. Weber. And, by the way, Mr. Weber has a little book that gives full particulars on how to apply this drug. Perhaps I am giving our friend a free advertisement; but he has spent not a little time and money in helping to develop and bring before the public this new method of cure, and it is no more than right that he be rewarded for his pains.—Ed.]

MORE ABOUT BEE-KEEPING IN JAMAICA.

BY GEO. W. PHILLIPS.

[Mr. Geo. W. Phillips, the writer of the following article, was born and raised in Jamaica. A little less than a year ago he came to the United States and subsequently accepted a position with us. As considerable interest has been manifested regarding Jamaica I asked him to follow up the article of Mr. Alexander, in our last issue, with another one telling something about his own bee-keeping operations on the island, and of that remarkable honey-plant the logwood Mr. Phillips owns 500 colonies in two yards, one of which — the smaller one — is shown in the first illus ration. He is at present our head apiarist, having charge of our bees in and about Medina. In this connection I might state that Mr. Harry Howe, of "lightning-operator" fame, is running our Cuban yard of 500 colonies.—Ed.]



AUCHENDOON APIARY.

Many questions about Jamaica have been fired at me since I came to the States—some of them easily answered, and some almost unanswerable—questions of every sort, and upon almost every subject imaginable, and bee-keepers have not been backward in asking their share. For the benefit of the latter, therefore, I write this article, and hope it will be of interest.

There is probably no place where conditions are more favorable for bee-keeping, and where the apiarist can find more real pleasure in the pursuance of his favorite task, than Jamaica. To begin with, one has no winter and early-spring problem to solve; but pleasant sunshine, fragrant flowers, and booming colonies exist; while in the northern country, zero weather and chaff cushions are the order of the day.

Monster apiaries can be run profitably in Jamaica. During the logwood bloom, which comes somewhere between December and March, 600 colonies or more could easily find pasturage in the same locality; but since the flow of nectar from other sources is not correspondingly heavy, most of the large bee-men keep but 300 or 400 colonies in each yard.

Too much can not be said of logwood as a honey-plant. It has always been, and very likely will always remain, the staple honey plant of the island. While the American bee-man sees in dismay the forests of basswood yielding to the ax of the woodman, and his prospective harvest from alfalfa nipped in the bud, the Jamaican bee-keeper can know with assurance that, unless the climatic conditions are extremely trying, the big yields from logwood will continue as the years come and go.

This photo shows a part of one of our apiaries at a place called "Auchendoon." The trees in the picture are very fine specimens of the logwood. There are thousands of acres of the same around; and when the bloom is on, and those giant colonies get fairly started, the rush and roar can better be imagined than described.

In this apiary the ten-frame hive is used exclusively. Had I the chance to start over again I should prefer a larger brood-nest—the ten-frame Jumbo or twelve-frame Langstroth, for instance. The long-continued honey-flows; the chance for building up to meet these flows; the swarming problem, and other conditions peculiar to the tropics, combine to render a large brood-nest desirable.

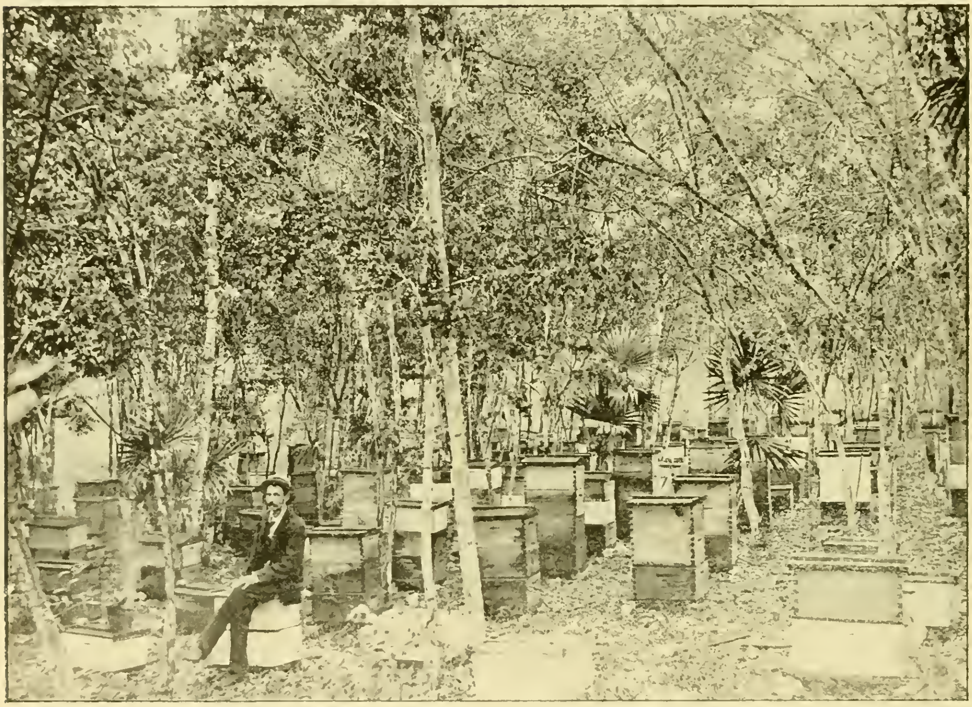
Our apiaries are run for extracted honey entirely. The picture above was taken during the honey harvest. Our manager (who, with his assistant, appears in the picture) was out of vessels to put the honey in, our shipment of tins being a little late. Imagine those upper stories filled, and honey still coming in, and the pressing need of vessels, and our manager's nervous impatience will be obvious.

At the left of the picture is a hive with the cover badly warped, and the side of the hive covered with bees. Covers must be well made in order to stand the heat of the tropics without warping.

Many and happy are the days I have spent working in the shade of those logwood-trees in "Auchendoon apiary." The clear blue sky, visible through the foliage overhead; the fresh sea-breeze stirring the slumbering branches; the gurgle of the brooklet flowing hard by; the beautiful green "commons," spotted with grazing cattle; the distant music of the ocean waves upon the bleached sands of the shore; the towering mountains, their bosoms decked with tropical vegetation, all uniting to take away the drudgery from hardest labor, and sweeten the cup of daily toil.

In each apiary we keep about 100 nuclei for queen-rearing, and requeen about two-thirds of our colonies every season. Queens have no winter to rest in, but must be as prolific in December and January as they are in July; consequently they get worn out early. Exceptionally good ones may be kept for two or even three years; but on the whole it is more profitable to weed out all but the best every year, replacing with young vigorous queens.

We use the Doolittle method of queen-rearing exclusively, modifying the same here and there as our experience and that of others show such modifications advantageous. When our colonies are strongest, cells are built between two frames of brood in upper stories; and between August and December we generally use a ten-frame hive, divided in the middle by a perforated zinc division-board, the queen laying on one side of the hive, and cells being built on the other.



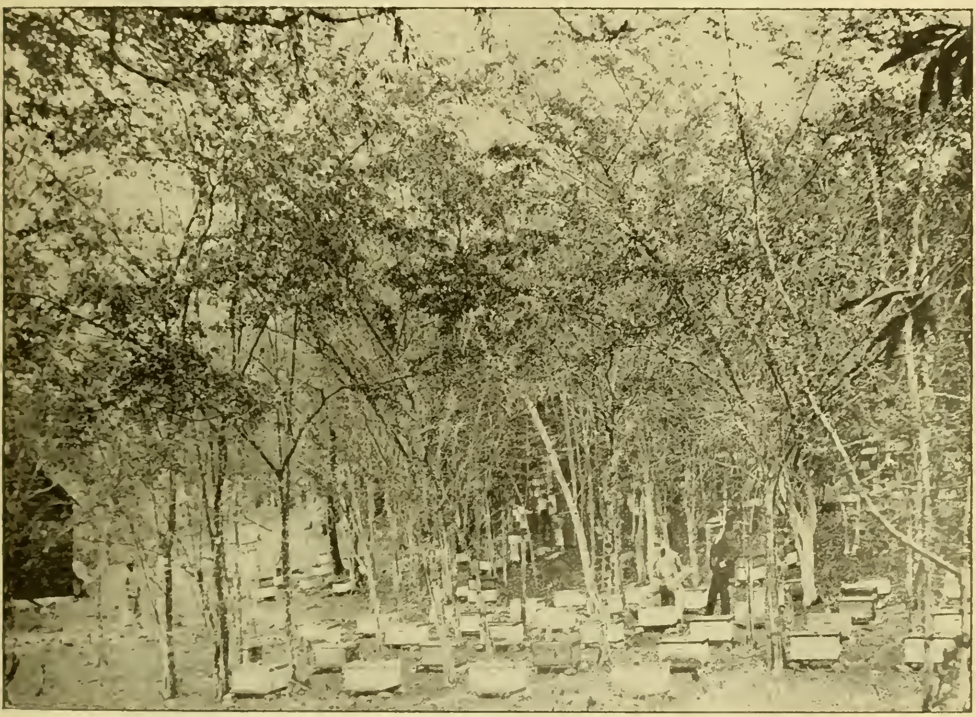
Apiary at the Cross Clarendon. Mr. F. A. Hooper in the foreground.

A strange thing about Jamaican bee-keeping is that no fear need be entertained that bees will swarm during the heavy logwood bloom. They swarm almost immediately after, however; and unless one knows how to manage, supers of unripe honey will be removed by the swarms to help build their new homes. This most unpleasant proceeding may be obviated by the use of the "shook-swarm" system. After having given it a thorough test we are highly gratified with the results obtained.

Through the medium of various publications on bees, Jamaicans can keep step with the times, and bring into use in their apiaries the most modern systems. GLEANINGS and other bee-journals are eagerly looked for, and their contents devoured by all who are interested in the bee business. Something was said in GLEANINGS not long ago about a man who read his copies of the same through and through, advertisements and all. I can tell of one of our men who was not even satisfied with the advertisements in the A B C of Bee Culture, but he learned the entire poem at the beginning of the book—

> "When Novice first began to tell,"

etc , and was proud of being able to repeat it through without a hitch.



One of Hooper Bro's' out-apiaries run for extracted honey. The trees are logwood, of which there are 1000 around, and in the honey-flow enough bees can not be got to take off the nectar.

Jamaica boasts of some very distinguished bee-men; and it is my pleasure to say something in this of one of the most extensive bee-keepers in the island. I should like to introduce him, but can not, since I am sure the readers of GLEANINGS are already acquainted, through its pages, with Mr. F. A. Hooper, of the firm of Hooper Brothers, whose picture appears opposite. Among the pioneers of Jamaican apiculture the names of Hooper and Nash stand forth perhaps as prominently as any others. The former has for years held the agency for The A. I. Root Co., and, as a result, is well known by West-Indian bee-keepers. The following illustrations show some more of the Hooper Brothers' apiaries.

These are, for the most part, situated near the railroad stations, so that, while we have to resort to the horse and trap or the bicycle as a means of locomotion between apiaries, Mr. Hooper does the most of his traveling on the train.

I once made up my mind to visit Hooper Brothers' apiaries; and, with this object in view, I started for Kingston with a friend. On reaching that place we found that the head of the firm was ailing, and consequently we did not have the pleasure of being shown around. As a result I am not able to give as detailed an account of the apiaries as I might had I visited them.

The views, however, will speak for themselves. I have heard it said that from 500 to 800 colonies are kept in a single yard. While this may be exaggerating a little, it is a fact that their apiaries are colossal.

Mr. Hooper is the most extensive queen-breeder in the West Indies. His bees are for the most part of the five-banded strain. I feel that a tribute of praise is due him for the pains he has taken to keep foul brood out of the island. In introducing breeders imported from the States and Italy into his apiary, he always takes the precaution to remove each queen from her shipping-cage and attendants, place her in a new clean cage by herself, starve her for about twenty minutes, and then introduce her. The old bees and cage he consigns to the flames. As a result of this precaution, not one case of foul brood has yet been known in Jamaica.

Hooper Brothers' queen-rearing yard at Barbican, St. Andrews. The young man standing in front is the eldest son of the senior of this firm. The little house in the center is the transposing-room.

A booklet, entitled "Bee-keeping in Jamaica," has recently been published by this gentleman. For beginners, and, in fact, any one interested in tropical bee-keeping, it will be found both interesting and instructive.

I have met Mr. Hooper face to face but once in my life, although for years we have had correspondence. In the half-hour that we talked together he impressed me as being an enthusiast; and to this fact, as much as to any other, I attribute his success in the bee business. Show me the man who is signally successful in any department of life, and I will show you an enthusiast. The man who has an object in life, and justifiably applies every faculty of mind and power of body in accomplishing his lifework, is the man who succeeds. There are two classes of people in this world. Of one class it may be said, as was said of the "village blacksmith" — "something attempted, something done;" and of the other, "nothing attempted, nothing done" — that is, nothing specific attempted. True it is, that the former are often laughed at and called cranks; yet it is a satisfaction to know that they are the *cranks that turn the wheels of progress* in human affairs.

I take this opportunity to extend my best wishes to the bee-keepers of Jamaica.

Medina, Ohio.

DRIVEN SWARMS.

Method of Treatment; Some of the Difficulties to be Overcome.

BY A. J. WRIGHT.

I use the word "driven" instead of brushed, shaken, jounced, forced, etc., because it expresses a distinctive feature of the plan I use. I was considerably surprised when the matter of brushed, etc., swarms was first brought up in GLEANINGS that you seemed to regard it as something new. Why, Mr. Editor, I have been practicing it for a long time. In fact, it is the only method by which I can secure a paying crop of honey in this locality. I can not say whether this plan will work well in all localities; but in localities similar to this, where the honey-flow is usually short and quite uncertain, it seems to be just the thing.

The first and very important step is full colonies and an abundance of stores in the fall; brood-rearing at the earliest possible time in the spring, which I secure as follows:

About the middle of February, if the weather is mild, I set the colonies out of the cellar, allowing them to remain until it turns cold again, when they are replaced. The strongest and healthiest will now start brood-rearing if the temperature of the cellar is not below freezing. About the middle of March, if the weather is favorable, each colony is placed on its summer stand, and is well protected by outer covering. Last spring my bees were set out March 22, and examination showed brood in various stages, the best colony showing four frames of capped brood on that date. Some writer (was it Mr. Somerford?) said in GLEANINGS that only a weak swarm would start brood-rearing in the cellar. This is not at all true with me; but the reverse is the case.

One of Hooper Brothers' out-apiaries in Clarendon. F. A. Hooper in the left foreground. Building shown is honey-house.

Each colony is now worked for brood for all it is worth; and when the frames are pretty well filled, another hive is placed above with queen-excluding zinc between, putting capped brood from below above and giving empty frames below, when young eggs are given above, and this is continued at intervals until queen-cells are started in the upper story. When some of these cells are capped over, all but three or four of the best are cut out and destroyed, leaving the bees are hatching lively a frame of larvæ or others to hatch. Before any queens have hatched out, the perforated zinc is removed, and a frame with wire cloth tacked on the upper side is put in its place, and on this frame ¼-inch strips are placed on three edges, leaving the fourth open for an entrance. This upper-story entrance should be on the side opposite the lower one. In due time a queen will be found laying above, and both stories must be worked for brood to their greatest capacity, and additional stories given above or below if required. This must be continued to the commencement of the honey-flow.

Now take a box of the size of the hive in use; remove the upper story containing the young queen, and place the box over it. Now smoke the bees lightly, first breaking the cappings in a frame below, and then drum gently on the hive, giving the bees ample time to fill their honey-sacs. Drum these bees into the box above, making a *clean* drive if possible. Now remove the old queen with a frame of adhering bees, and place this frame in any empty hive-body. Now break the cappings of a frame in the hive from which the old queen was taken; place the box containing the driven bees over this hive, and drive all bees from below into the box above. All being of the same odor, no trouble will result. Have now your frames and supers ready, and dump the bees in front of the entrance. Use all drawn-out comb in the brood-nest below, if shallow, and full sheets of foundation in the supers. I have never found it necessary to use perforated zinc between, yet in some localities it seems to be necessary.

The principal objections to be overcome in the brushed, etc., swarm plan are:

1. A tendency to abscond.
2. The building of too much drone comb.
3. The deposit of pollen in the sections.
4. The building of queen-cells in the colony of the parent stock.

The *driven*-swarm plan, as I practice it, overcomes the objections as follows:

1. The driving of the swarm, as detailed, reduces the colony to the condition of a natural swarm, and thus reduces to a minimum the liability to abscond.
2. The driving of the *young* queen with the swarm insures the building of worker comb.
3. The use, as far as possible, of drawn-out comb in the brood-chamber is a safeguard against pollen in the sections.
4. The old queen is a safeguard against the building of queen-cells in the parent stock.

If increase is desired, the old queen and hatching bees will furnish it. If not desired, then the worker bees may be given from time to time to the new swarm. By the above method there will be no swarming if sufficient room is given in the supers.

The foregoing plan, to be successful, requires close attention to details, a thorough knowledge of the habits of bees, and of the pasturage in the locality of the apiary. I do not, therefore, recommend the plan for beginners.

Since writing the above I have received the Dec. 1st number of GLEANINGS, and note on page 978, Mr. Editor, that you want something on the question of foundation or empty combs in the brood-chamber.

If the frames are shallow I use *all* empty combs if possible — filling out with full sheets of foundation or starters if necessary — for the reason that the queen and bees know instinctively that the first thing to do is to produce brood, and they use the material best suited to their immediate needs — namely, drawn comb. The bees proceed at once to clean out this comb, and this gives the queen ample room for the immediate deposit of eggs, which keeps her from going into the supers. As soon as the queen begins to lay, the bees will put pollen below, and neither eggs nor pollen will go into the supers.

When the bees are slowly driven — not shook, brushed, jounced, etc., and allowed to *fill up* on honey, their natural instinct is to use this honey converted into wax for comb-building; there being no use for it below on empty combs, it is carried into the supers, and the foundation in sections is rapidly drawn out.

If foundation or starters only are used in the brood-chamber, the bees can not draw it out fast enough to accommodate the full egg-laying capacity of a young prolific queen, and this is particularly true of shallow frames or a contracted brood-chamber.

Bradford, N. Y.

SNAP SHOTS GATHERED AT THE ONTARIO CO. BEE-KEEPERS' CONVENTION.

BY F. GREINER.

As to the disposing of our honey, we bee-keepers are not doing business on business principles. We ought to co-operate.—H. L. Case.

We New York bee-keepers have the advantage over our western competitors. We are at the consumer's door.—W. F. Marks.

Crop reports of an official character would assist us in establishing uniformity in prices of honey. The sum of 2000 dollars was set apart by the government for apiculture, but was not used. A definite sum should be set apart for gathering crop reports. If this business were conducted by the government, figures would not be manipulated, and nothing would leak out prematurely.—Frank Benton, Washington, D. C.

There is a class of bee-keepers who can not be educated; they will undersell any way. The cure is, to buy their bees. Ricker, Iowa.

A good way to space brood-frames is by way of a wide staple to be driven across each rner of the frame. This will at the same me act as a brace.—Frank Benton.

I move my bees without spacers. I move 0 or more colonies every year.—Ricker.

After a colony had been wintered in a ngle-walled hive, the hive-walls contained pints of water, or 5 to 6 lbs.—F. Benton.

Marks can not winter his bees in chaff. icker wants no chaff; Greiner, only chaff r place in cellar.

The Cyprio-Carniolan bee is a success. f a full-blood Cyprian queen is used, the ross will be gentle. The temper of a cross omes from the male, the Carniolan drone. his cross has only one fault: It will not o to breed from them.—F. Benton.

If you practice clipping queens' wings, e sure you clip *every* queen.—Marks.

Best time to clip queens is during fruit-loom.—H. C. Roat.

A pair of scissors with a curved blade is he handiest for clipping; prefers one not oo short.—Greiner.

The wings assist the queen in walking; should not be removed entirely or cut too hort.—F. Benton.

To cure a drone-breeder, give a comb of merging bees; a few days later, another; hen introduce a queen.—Benton.

We manage our apiary as follows: Keep he entrance cleared in early spring. When warm enough we look over the bees, lip the queens, give honey when necessary; ontract, tuck up, and leave alone till honey-flow, when packing is removed and su-ers given. When swarming occurs we ive with five frames on old stand, and put ll boxes on the new swarm; shake part of the bees from the parent hive into the young swarm, and move it to a new location, well tucked up, and then leave it alone. The young swarms are given room as necessary; and when the white-honey season is over we give each two or three empty frames, when no more is done with them except packing in the fall.—Master Case.

Aster ericoida rarely fails to produce honey.—Benton.

Every honey-producer ought to know how to rear good queens. The use of swarming cells will eventually produce a swarming strain of bees. Good cells may be selected by their size and regularity. Jarring of cells may result in the death or crippling of the young queen. After her last larval moult, the queen remains attached to the food. Some food may be taken by osmosis. The umbilical cord (of Gallup) is a mistake.

The necessary conditions to rear queens exist during the swarming season. A colony rearing queens should have plenty of stores; unsealed brood had better be removed. Absence of brood will produce a great desire for a queen, and the larval food produced by the thousands of nurses is available for the rearing of queens. Had 200 cells built by one colony, and nearly all produced good queens. To confine cell-building bees is not necessary. Naturally built cells are better than artificial cells. It is a good plan to remove royal larvæ from natural or even post-constructed cells, and substitute minute larvæ of our own selection. To form nuclei with full frames is convenient but expensive. Two combs are not as readily occupied by the queen as three or more frames. Small-frame nuclei, three to five frames each, of $\frac{1}{3}$ L. size, are convenient, and my preference. A permanent feeder is essential in nuclei.

The number of mating hives in an apiary would be about 20 for each 100 hives of bees.

The idea of giving an abundance of room to a queen in a mailing-cage is wrong. The food apartment should be coated with wax; and, when filled, the food again should be covered with wax. Powdered sugar and extracted honey is the best food.

In the selection of stock to breed from, I use the following rules: Observe the markings first. They should be right. The workers must be of large bodies. Note their behavior, their irritableness or docility, their activity. A queen should be large around the waist under the wing; wings long; the color should, in case of the Italian race, not be light yellow nor black.—Benton.

The use of full sheets of foundation in section boxes is a matter of dollars and cents. It is money in the bee-keeper's pocket. Many bee-keepers have gone back on the use of foundation in the brood-chamber. —C. C. Southerland.

It pays to use foundation in sections; but the quality of the honey is impaired by its use.—Smith.

MASSIE'S HIVE AND BOOK.

Some Corrections.

BY T. K. MASSIE.

Mr. Editor:—Fully believing that you mean to be fair, and knowing that you are rushed with work, and seeing that, in your review of my book, you make some statements that are liable to mislead your readers, I ask for space to correct them.

1. On page 376 you say, in substance, that in my plan of direct introduction of queens, the queen is let loose on the frames of hatching brood which are separated from the colony to which she is to be introduced, by "a thin board." The fact is, she is separated from the bees below by a *wire cloth*, which is nailed to a thin board. The plan is as simple as can be, and is not cumbersome. Simply put in one queen and remove the other, and she is *absolutely safe*. Any one who takes the time to look at the reasons why the plan is safe will see that failure is impossible.

2. You say the hive "is similar to the Danzenbaker, which seems to have suggested some of its features." The fact is, I was using most of these features before I ever knew of friend Danzenbaker, as he saw when he visited me in 1898. It seems strange how different men hit upon the

same thing, and without any knowledge of each other. I invented a $\frac{3}{16}$-inch top-bar frame, and am testing it, and it can not possibly sag. About the same time, Mr. Thos. Chantry, of South Dakota, struck upon the same idea. We knew nothing of each other's existence, and nothing was suggested by either one to the other. The same is true of Mr. Danzenbaker and myself. Mr. E. F. Atwater, of Boise, Idaho, thinks so well of the thin-top-bar frames, that he has, by permission, had frames made for 200 nine-frame cases.

3. You say, "Close-fitting closed-end frames in a *deep brood-chamber* [italics mine] are liable to cause trouble by swelling. . . A close-fitting frame *might* be made to work provided it were loose enough." I know that a half-way indorsement of a thing is apt to do great damage by leaving the impression that it had already been tried and proved to be a failure. Your objections here, if valid, would completely knock out of existence the Danzenbaker hive — the best one your firm ever made. I know by this, that, in your haste, you misunderstood the construction of my hive. Were it not for this fact I might be so uncharitable as to ask, "Why, without any foundation whatever, go outside of the facts to lug in an imaginary objection?" I reply: 1. My hive is large, but is not a *deep-brood-chamber* hive; 2. The looseness *is already provided for* in the yielding springs, the same as is the Danzenbaker hive. This could also be provided for, as suggested to me by Mr. Arthur C. Miller, by means of yielding vertical strips in hive side-walls; 3. That with leaky covers all parts of the hive give trouble by swelling, which is not met with when good covers are used; 4. That a thing is often condemned on account of the *manner* in which it is used. Close-fitting closed-end frames would, perhaps, give trouble in your Dovetailed hive as it is now constructed; but a slight change in construction would overcome the trouble, and enable you to use a good thing without any bad results.

Tophet, W. Va.

[What appears to you to be a matter of haste, perhaps, on my part, was simply a question of *room*. I had just a little space, and was compelled to condense — indeed, I dictated the review of your book twice, and the second time I cut out every detail, giving, as I thought, the bare outline of the main or essential principle. If the reader desired the details he could send for the book.

Perhaps you feel I haven't tried closed-end frames in deep-brood-chamber hives. If you will go over the back volumes of this journal for about ten years ago, you will find where I tried, as I thought pretty thoroughly, closed-end frames such as I saw at the apiary of J. Y. Tunnicliff, in New York, and my criticism was based entirely on personal experience. The possible defect that I pointed out does not apply to the Danzenbaker, because that frame is not close-fitting. There is a chance for end play and finger room, and the end of one of the frames may be lowered faster, to a certain extent, than the other, without sticking or pinching. Very likely the closed-end frame, as you make it and use it in your hive, will give no trouble, and I therefore stand corrected.

But leaky covers are not the only thing to cause the swelling of parts of the hive. Damp weather will do the same.—ED.]

SIFTED SWARMS.

Don't Let your Bees Get into a Mix-up.

BY T. J. ADAMS.

On page 288, Apr. 1, Wm. McEvoy gives his way of preventing a mix-up when queens are clipped. When queens are not clipped, how shall we prevent it? With 300 colonies in a space 65×75 feet, and not a queen clipped, we succeed fairly well as follows:

Close the hive tight as soon as the swarm begins to issue. At the end of five minutes let out a dozen or two bees, one at a time. If they take wing, close the hive for five minutes more. A strong colony might smother if confined longer. It may be necessary to repeat this several times, or until they do not take wing when let out, but walk up the front of the hive, buzzing and fanning; then open the hive. They are then cured of the swarming-fever. Give the bees room, and the result will be satisfactory. I think they kill the old queen, and her place is soon filled by a young queen, which is usually a profitable exchange. If increase is wanted, take one or two combs of hatching brood with a few bees, and a good queen-cell, and a comb of honey to form a nucleus.

Sometimes we wish to save the queen, or the queen may be out before we see the swarm issuing. We then take two empty hive-bodies, two queen-excluding honey-boards, and the bee-smoker, to where the swarm clusters. Put one honey-board between the empty hive-bodies, and the other on top for a lid, and raise one end of the lower hive for ventilation. Shake the cluster into the upper hive-body, or, if more convenient, shake into a large pan or other light vessel, and carry to the hive, always carefully covering with the honey-board as soon as part or all the bees are emptied in. When all are in, a few good puffs of smoke given through this honey-board cover will drive the bees into the lower hive. The queen will be in the upper hive between the honey-boards. Carry her away, first jarring the bees off that are clustered under the lower honey-boards. The queen is now very easily found. Kill her, or form a nucleus with her as above. To find which hive the swarm came from, smoke and scatter the bees in the lower hive-body. Unless a virgin queen goes out with the swarm they will return and cover the front of their hive. Our colonies are strong in two-story ten-frame or three-story eight-frame hives. We have never been troubled with second or after swarms when all the bees were returned to the old hive; and by giving room they always do better with me than when allowed to swarm.

To tell how takes much more time than to do the work. I have screened two large swarms in five minutes, using the same hives and honey-boards for both.

I used to dread the swarming-time; but now my mind is at rest, for in my apiary I am master of the situation when there is no virgin queen with the swarm. Possibly there might be after-swarms in some localities, but I do not have them.

Russell, Ala. T. J. ADAMS.

SHAKEN SWARMS FIFTY YEARS OLD.

Is not Father Langstroth the Originator of the Forced-swarm Method?

BY D. C. L.

I have been so situated that for months past I have read none of the bee papers. I now have before me GLEANINGS for Nov. 1, in which I find several references to "forced" or "brushed" swarms, and an article of some length by Mr. Stachelhausen, on the same subject. Some question seems to have arisen as to who is "the author of the brushed or shook swarm method;" and an editorial note appended to Mr. Stachelhausen's article gives him the credit, as he has practiced it for over twenty years.

Now, if I am not greatly mistaken Mr. Langstroth practiced substantially the same method more than *forty* years ago. I have before me his book published in 1862, in which he devotes several pages of the 10th chapter to "Artificial Swarming." Beginning on page 154 he describes at length his method of forming forced swarms. Is it not a fact that father Langstroth is entitled to the honor of introducing the system?

Springfield, Mo.

[You are right. In the chapter on artificial swarming, Mr. Langstroth does describe a method of "forced swarming" very similar in many of its details to the plans we have been lately advocating. He goes on to say how unsatisfactory mere dividing is to secure the results obtained from natural swarming; all plans of artificial swarming he condemns save one, which he calls "forced swarming." He directs that the operation be performed at the beginning of or just before the swarming season. The parent hive is to be removed from its stand, and an empty one or a decoy hive put in its place about ten in the morning, when the bees are flying thickest. The old hive removed is turned upside down, and the bees from it are drummed up into a box. This is then set down on a temporary stand. The old hive is put back on its old stand to catch the flying bees, and the bees in the decoy hive which had been on the old stand. It is then removed to another stand, when the hive or box with the drummed-out bees is put back on the old hive stand. Just why Langstroth recommended so much unnecessary manipulation is not explained, any more than that, in his opinion, field bees were necessary to take care of the brood from the parent hive. Perhaps this may be a sufficient explanation; but ordinarily we would not suppose field bees were just the ones for this kind of work. Had he recommended, as he suggests further on in the chapter, removing the old hive, shaking the bees in the morning, and getting nearly all the bees in a new hive on the old stand, his plan would have been virtually the same as the shake-out plan of to-day; at all events, we have Langstroth indorsing the basic principle of the shake-swarm plan now in vogue, and condemning the plan of artificial increase by a mere dividing.

It is remarkable how Langstroth antedated so many of us in our new (?) discoveries. This is not the first time we have reinvented some methods found in his book. While it is possible that a novice taking up his work, and reading his methods of "forced swarming" would fail to get the real essence of the plan now in vogue, yet there is no denying that he had the *idea;* and I believe it is no more than right that we accord to him the palm of original discovery of "forced swarming." When I say "forced swarming," he used exactly that term in the first edition of his book away back in 1852 and 1857. We thought we were new in adopting this name; but here again Langstroth was ahead of us. Nothing but consummate genius could have cut the ground clean out from under us fifty years before in so many things as is done by the father of American bee-keeping. Well does he deserve the title that has been so justly applied to him.—ED.]

USE OF FOUNDATION.

Full Sheets are More Profitable; the Fallacy of the Crowded Brood-nest.

BY ADRIAN GETAZ.

A few days ago, while looking over my bee-papers for some information, I came across several articles about the use, non-use, and abuse of foundation. If I have not misunderstood the writers, the only point considered was the amount of wax saved to the bees by the foundation given, or lost to the bee-keeper, in case the bees could have secreted that amount of wax just as well. This seems to me the smallest side of the question, if that expression can be used. But before going further, let me make a comparison. Suppose you have a brick wall 32 feet long by 20 feet high. It takes 4 feet of space to accommodate a brick-layer, so you can put 8 men at work. Now suppose a second wall to be 64 feet long by 10 feet high. That wall contains as many bricks as the other, yet it can be built in half the time. Why? Because you can put 16 men at work instead of only 8. Do you see?

Now suppose you give some of your colonies full sheets of foundation to some other fair-sized starters, and to the rest only small starters. Two or three days later you go and look. Those having the smallest starters have only them perhaps to only one-third of the section. Those having the larger starters have extended them to two-thirds and perhaps a few drops of honey are deposited already in the deepest part.

But the full sheets have been drawn over nearly their whole surface; the cells are partly built up, and quite an amount of honey is already in. Why the difference? Simply because there is room for a larger number of bees to work at the same time on a full sheet than there is on a starter. The bees might be there, and the wax scales also, but only a limited number of bees could work on the smaller starter, just like the masons on the wall above referred to. I think this is the most important point gained by using full sheets of foundation.

CONTRACTION.

Contraction, or small brood-nests, came also under consideration with a number of writers. Their argument is something like this: If, when the honey-flow opens, there is room in the brood-nest, the bees will store the honey there, and go into the sections only after the brood-nest is full. If, on the other hand, the brood-nest is full, the honey brought in by the bees will *necessarily* go into the sections because there is no other place to put it. Don't you see?

Yes, I see—that is, providing it is so. May be it is a question of locality. In my locality the thing does not quite work that way. At the opening of the flow I have only sheets of foundation, sometimes only starters in the sections. In this locality it is impossible for the bees to store honey in empty sections. How it is in Illinois or Michigan, I don't know. It takes about three days to establish the wax secretion in full, and that many more days, or about, until sufficient headway is made in the sections to admit a rapid storage of what can be brought from the field.

Now suppose the brood-nest full. What will be the result during that first week? Having no place to deposit the nectar, the field bees will necessarily be idle; and the result is, the first week of flow will be practically lost. Lucky will be the apiarist if the bees thus forced to remain idle do not take a notion to swarm.

If we use large brood-nests there may be, at the opening of the flow, perhaps two, three, or more combs empty, or practically so. They will be filled rapidly with honey.

The movement of the bees, the constant handling of the nectar, the fullness of the
bees, will provoke the secretion of the
regardless of the room in the brood
and of the strength of the colonies, a
temperature, are right, the comb-bu
will begin in the sections, *not quite but*
ly as soon as in the other case. So, in
the honey stored in the brood-combs
most a clear gain. Furthermore, th
pensity to swarm is considerably red
At any rate, that is the way the be
in this locality.

Knoxville, Tenn.

Heads of Grain
from different fields

DOES THE NEW GROWTH OF WHITE C
EVER PRODUCE HONEY?

On page 931, 1902, both you and D
ler want to know if the new growth of
clover ever produces honey. If you
the bloom that comes after harvest.
away on in the season, just before c
frosts, I answer in the affirmative. In
fields here and on the roadsides the
bloom gave a decided whiteness to the
scape. Last fall at times the roads
tempting to those who love the whee
for observation and pleasure I took r
the south, north, and northeast of A
and I found bees working everywh
white clover. The honey was thin a
flavored, and the bees did not ha
power to fix it up. Some sections tha
finished with it show clearly the late
ered clover honey. The bees did no
to care to cap it, neither in the brood
ber nor in the sections. But if you
that which was sown in the spring
"I don't know," for we scarcely ev
white clover here. It just comes itse

SELLING CANDIED HONEY.

During the past winter, Morley s
a grocer in this town with some c
honey in 60-lb. tins. The grocer,
ing to instructions, stripped the tin
one lot and placed it in a conspicuou
in a window in his grocery, with
scription "Pure Clover Honey," i
letters. Well, in a short time th
gone, then another, for a brisk sale
up immediately. In a short time th
of honey failed to appear in the w
A clerk said to me, "That candied
interferes with the sale of our comb
so much that I guess we won't s
more that way until we work off som
comb."

They cut it into square and rath
pieces so smoothly and neatly that
very different article from honey du
a pail. Then the customer wisely

thus: "That honey in the bottle will cost me about four cents a pound more than that lovely candied honey, and the candied honey will look so nice cut up and served in little square blocks."

Of course, some package other than the old-time tin cans will be resorted to another year.

R. F. Holtermann had sold it by the barrel that way in Brantford. He simply placed it in a large window, stripped the barrel off, and went ahead. S. T. Petitt.

Aylmer, Ont., Can.

[This method of selling candied honey is excellent. I have known of the plan of stripping a barrel off from the candied mass; but so far I do not think any one has suggested the plan of stripping a tin can off from the candied honey and selling it in the stores in squares and slices. It is a good scheme, and perhaps some of our bee-keeping friends would do well to paste this in their hats until the time of selling candied honey comes around next winter.—Ed.]

STARTERS, SWARMING, WHY DRONE COMB IS BUILT FROM STARTERS.

I notice in the May 15th issue of Gleanings a good deal written by different ones on the subject of starters and full foundation sheets for swarms—some favoring one and some the other. I have had several years experience in bee-keeping in southwest Texas, in Uvalde and Dimmit Counties. I have had some experience with swarming—more this year than any previous. When we have a real swarming season here in Texas the bees swarm, as Rambler would express it, "just any old way." They transcend all the rules laid down in the books, and the most earnest wishes of their manager. The rule to give them plenty of drawn combs won't work here—at least with all of the colonies. I have had colonies this year in double-story hives, with twenty old combs, swarm when they had filled only a little over half the combs in one box, leaving the rest practically untouched with the exception, perhaps, of a little honey in a few of them. I would destroy the queen-cells and put them back; but just as soon as they could build new ones and had time to seal them, out they would come again; and then the old queen seemed determined to get even with me for such peremptory measures, by laying just as little as possible between the times of the first and second swarming. This season I have had as many as ten or fifteen swarms come at once—at least they came so close together that I hadn't time to dispose of them singly, and there would be a general mix-up. In this case nearly all of the queens would be killed. I would have to hive them on queen-cells or open brood.

In these mix-ups I generally put from ten to twelve swarms in three or four hives. I find, if there is a good honey-flow on at the time of hiving, these large swarms will put in a fine lot of honey; but if the honey-flow is lingering or slow I would rather have an average swarm with laying queen, for good result.

I see some recommending covering the hive with a blanket to prevent more than one swarm issuing at once. I have kept back some by stopping up the entire entrance with a board. I am introducing into my apiary the Danzenbaker reversible bottom-board; and as I keep the deep space up during the swarming season, I think I shall make stops of wire cloth to close the entrance of hives that show signs of swarming while another swarm is in the air. This can be done without injury to the bees, as the wire cloth will give plenty of air.

Now as to the new swarm building drone comb from starters. I think the season has a good deal to do with this. If there is a rushing honey-flow at the time the swarm issue, or shortly thereafter, the bees will build a great deal more drone comb than they will when the honey is coming in more slowly, because the queen is not able to keep up with them, and they build for honey instead of for brood. This at least has been my experience. Two years ago we had a fine honey-flow at the time most of my swarms issued; and almost half of the combs built were drone. I used half-sheets of foundation cut diagonally, and in a great number of the hives the open space in the frame was filled in with drone comb. This season I cut the sheets of foundation straight across, as I believe this is best for the brood-chamber. The honey-flow was more gradual, and I find that, in most of the hives, very little drone-comb was built. The bees for the most part have built nice smart worker combs. I find it impracticable to put in full sheets of foundation unless they are wired in, as a heavy swarm will tear most of it down. I have never practiced wiring. When my bees are ready for a top story, I am running them entirely for chunk comb honey.

W. E. Rector.

Carrizo Springs. Texas.

[The age of the queen also has something to do with the building of drone comb.—Ed.]

GETTING BEES AND HONEY OUT OF TREES OR BUILDINGS WITHOUT CUTTING OR DISFIGURING.

I would go one step further than Mr. Fouch, page 155. When accessible, place a hive containing one or two frames of brood and adhering bees, with caged queen and six frames of foundation, so the bees will work from the colony to be removed, through a bee-escape, as described by Mr. Fouch, letting it remain until the old colony has been destroyed by loss of its working force. Some arrangement should be made to get a supply of water into the old colony so as to supply the brood, else it would die. As fast as the young bees become old enough to fly they are added to the new colony, thus gradually reducing the old one until the old queen has to quit house-keeping. Now bend a wire so you can run it into the place occupied by the old colony; set the new hive aside, and thoroughly break up the combs of the old colony; insert a short tube in their entrance, and connect it with the new hive where the escape was, so the bees in the new hive can pass through and bring the honey through the tube. By this arrangement you get both bees and honey.

Spring Hill, Tenn. JOHN M. DAVIS.

[Your plan is all right, I think. Another correspondent suggests that, after *all* the bees are out, including those just hatched, the communication to the tree or house, from the new hive, be shut off. If the old entrance be left open, the bees of the apiary would rob out the honey in the tree so that you would get all the bees and the honey, and all there would be left would be the wax or old combs. After the old domicil has been robbed out, the entrance should be closed permanently to prevent some runaway swarm from occupying it again.—ED.]

ALFALFA-GROWERS AND BEE-KEEPERS.

Some of the alfalfa-raisers here in our new honey-fields have suddenly come to the conclusion that the apiarists are a menace to their industry. One farmer reasons that, as I produced last season 15 tons of alfalfa honey, he certainly secured that much less hay, and that it was also wanting in sweetness, which is so valuable as a fat-producer to those who feed their hay to stock. To one prejudiced against the apiarist, this seems a good argument. A few comments on this style of reasoning from one so high in apicultural research as the editor of GLEANINGS will do much to disabuse the minds of these raisers of alfalfa, and thus make the pathway of the humble bee-man less thorny here in the wilds of Nevada.

Lovelock, Nevada. C. K. ERCANBRACK.

[I can scarcely believe that an intelligent, up-to-date rancher or farmer would take the view that his hay crop is robbed of a certain amount of nutriment because the bees gathered from the clover a certain amount of nectar. Why, the nectar was put there by the great Creator for a purpose — to draw insects to mix and scatter the pollen, without which the plants would fail of reaching their highest development. Any scientific man would tell them that, so far from robbing the hay of its sweetness, the bees actually give value for value received. If the rancher is growing alfalfa for seed, his seed crop will be increased very materially from the work of the bees—no doubt about that. While I was on my western trip I ran across farmers of the old-fashioned type — ignorant, and jealous of their neighbors, who tried to convince me that the bee-men were robbing them of a certain amount of nectar that properly belonged to them, hurting the hay. Bosh and nonsense! If the alfalfa-grower were also a honey-producer, there might be some justice in his claims. But some of these chaps are regular "dogs in the manger" — they can't and won't use the nectar themselves, *and don't want any one else to.*—ED.]

QUEENS STINGING HUMAN BEINGS.

It is my usual practice to take queen-cells from cell-building colonies and place them in cell-protectors, when, if the wind is cool, they are placed in my shirt-bosom to keep necessary heat while being carried to nuclei when needed. Recently a queen hatched very quickly from a cell so treated, and, after crawling above my undershirt, stung me twice on the neck, and seemed capable of stinging as often as she cared to. The pain was less than I should expect from a worker. Do queens ever lose their stings when stinging people?

Modesto, Cal. W. A. H. GILSTRAP.

[It is very rare that a queen will sting a human being; but such cases are on record. Mr. E. F. Phillips, who is doing scientific work here at Medina, reports he was stung to-day on his thumb by a virgin queen. He has just shown me the inflamed red spot. The sting, he says, was not quite as painful as that of an ordinary worker. The queen gave him a quick jab, retaining her sting, while he was in the act of clipping her. It would seem from the case you report, and this one to-day, that virgins are more inclined to use their weapon than are laying queens.—ED.]

OLD VS. NEW COMBS FOR WINTERING; HIGH-CHARACTER BEE-MEN.

Referring to letter of C. F. Bender, page 289, "New and old combs, and their relation to winter losses," I give you an experience of mine. In the spring of 1901 I bought two colonies of common bees in old deep-frame chaff hives. I transferred one colony all right by placing the new hive on old stand, with two combs of brood, and the rest full sheets of foundation. But in order to save the brood in old hive No. 2, I placed the new hive on a new stand with two combs of brood—six frames of foundation, and shook all the bees I could in front. I tried to see the queen, but failed. The next day, nearly all the bees were back in the old hive, and soon the others had two queen-cells sealed, then a beautiful queen much larger and handsomer than the other two. This last one was transferred late, I think, in August; and as it was so late I was afraid it would not winter; but it did on six combs, and without any feeding in the fall. Now, the two colonies on new combs built in the summer of 1901 came out of winter quarters (on the summer stands) in good shape; and the one on old black combs, and which was the strongest in bees in the fall, died with plenty of honey left over. Why? I also want to say here that, when I joined the bee-keeping fraternity, I had no idea I was getting into such good Christian company, and am happy to see that most of our *big* bee-men are such devout and fearless Christians. That letter of Rambler's to Mr. Clemans, page 288, is pure gold to those who, like the writer, have lost loved ones (I should not say *lost*). How any one having been parted from a dear one by death, and having no hope of a future life after this one, can endure the thought is beyond my comprehension.

Stapleton, N. Y. A. D. JACOT.

HOW SALT CURED A BAD CASE OF BEE-PARALYSIS.

I had a case of something develop last fall that I suppose, from the best of my knowledge, was paralysis (I know only what I have read about bee diseases). They would swell up and get to be almost as large as two bees ought to be, and crawl around and die. It seemed that their bowels would become clogged, and they could not void them. Some warm days in winter they would drag out half a pint of bees that would crawl away and die. The brood was healthy.

About the first of March I made some syrup, and put enough salt in it to make a pretty strong brine, and poured a few spoonfuls of it down between the frames on the bees about sundown one evening. Next morning there seemed to be at least twice as many dead ones about the entrance as usual; but in two or three days they seemed to be a great deal better. In a few days I repeated the dose, and in a week it had entirely disappeared, and has not returned. I believe if I had not got it stopped it would have entirely destroyed the colony in a month longer.

I think the reason salt is good for it is that it is a disease of the bowels, and salt is a purgative; and when we get the bowels open and regulated we have no more bee-paralysis. L. C. ROUSSEAU.

Waxahachie, Tex.

SULPHUR FOR BEE-PARALYSIS.

I have just read what Mr. Crum says on page 396 about sulphur and bee-paralysis. Some time ago I wrote to you about the same thing. You advised me to burn them if I had only one. I had six that had it bad. I tried sulphur, and my experience is about the same as Mr. Crum's.

J. S. PATTON.

Havana, Ala., May 14.

MOVING BEES A SHORT DISTANCE.

In your issue for April 15 you spoke of moving bees a short distance. The simplest manner is as follows. The idea was gotten from Mr. Danzenbaker, some years ago, and the reason for the effectiveness is given below:

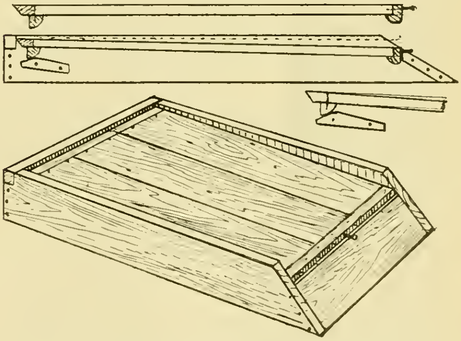
Thoroughly smoke and shake the bees, after all have returned from the field, taking care not to mash them by the too rough handling of the hive. When the bees have thoroughly gorged themselves with honey, and are settled, carry them rather roughly to the new position. When the hives are well firmed and level, set up bushes or plants so thick that the flight of the bees will be broken when they emerge the following day. This is absolutely necessary for success. If the bees are allowed to fly uninterruptedly from their entrances they will not mark the position of their new stand, thinking, probably, all things are as before; but if they are forced to pick their way through interrupting twigs or plants, then they will know that things are not as they were, and, with the disturbance the night previous, will deem it necessary to mark their new location.

ALBERT D. WARNER.

Warsaw, Va., April 20.

ANOTHER TILTING-FLOOR BOTTOM-BOARD.

I see on page 1024, 1902, a description of a new Danzenbaker bottom-board. I have been using a rising and falling floor-board for five years, with great success. My first invention was something like your illustration. It proved to be defective, owing to propolis, ants, weather, and hindrance to workers that fall on the ground. I can see some of the same defects in yours. The next season I made one in which I overcame these defects; and in cheapness and simplicity, and, greater than all, in keeping down swarming, and inducing bees to enter the super, it excels every thing that I have ever used. I have been working with bees for twenty years.



I send you a model of my bottom-board. You will see that the floor-board is removable by lifting the board nearly level with the top of the side rails, and then gently pull forward. You will note how easily the floor-board comes out without pinching or killing a single bee. The construction of the pivot-blocks keeps the board tight against the back-board in every position. The board can be fastened, if desired, by two screws at the rear for pivots. The beveled edge keeps ants and moth-worms from having any place to hide or making nests, and, like the Hoffman frame, bees can not or do not fasten a sharp edge with propolis as they do a square one. The pinching and killing of bees is also avoided. You will also see that it is not necessary to lift the hive from the stand when you clean the bottom-board. Pull out the board, clean it off, slide the hive forward an inch or two; and if there is any propolis on the back-board, scrape it off with a putty-knife (right here you will probably see the disadvantage of a grooved back-board). I also believe that the board falling inside of the alighting-board is far better than the projecting one. I have thoroughly tested both. The first tilting board that I made was in 1899. It proved defective. I improved it each year, and in 1901 I called the attention of two mechanics to my invention — this same board that I send you, but not quite so perfect as it now is. Joshua Fitzgerald.

Waynesville, N. C.

[Since the illustration that appeared on page 1024 of last year, we have made an important change in the bottom-board in question. The grain of the boards now runs crosswise instead of lengthwise of the bottom. Boards do not shrink or swell lengthwise, and consequently there will be no trouble from that source. The matter of propolis has been entirely overcome through the use of galvanized channel irons, the edges of which come in contact with the inside surface of the side rails of the bottom-board. In general appearance your bottom-board is similar to the Danzenbaker, but it would be more expensive to make, more difficult to pack for shipment, and, as made in the illustration, in some localities the boards would swell to such an extent as to render impossible the tilting feature of the floor-board. But as I understand you, the bottom-board you have used for a considerable length of time did not admit of the removal of the floor, and it is only the modification shown in the illustration that has this feature.

The adjustable entrance is not considered an important feature by Mr. Danzenbaker. A floor-board which will not warp, and which can be removed for the purpose of removing the bees, and for cellar wintering, are the features that are especially prized by him. Perhaps a tilting floor-board is old — at all events, quite a number of our subscribers have referred to it as the device they have used for several years.—Ed.]

HOW I STOP THE MIXING OF SWARMS.

I have about 200 colonies, and usually keep about that number during the swarming season. I have a helper, and one or both of us remain with the bees from nine o'clock in the morning until about four in the evening. We stay in front of the bees, which are in five long rows facing the east. As soon as a swarm commences to emerge, run with the smoker and give them a few good puffs of smoke direct in the entrance. If several are coming at once, run from one to the other and back again. Every one who has bees knows how to hurry.

If quite a number of bees get out before you can get there with the smoke it will make no difference—the smoke stops the swarming-note, and they will all return. I then mark the hive, and early next morning I take a new hive filled with empty combs, set it on the stand, and shake every bee into it. I then take all the brood, cut off all queen-cells, slice off all drone-heads with a sharp knife, and tier up six or eight high on a populous colony. As fast as bees are hatched I transfer the combs to supers of other hives for extracting from. When I transfer a colony I give them empty frames in the super with starters. Every thing gives the bees the impression they have swarmed, and you will have no more trouble for the season. I consider this superior to the "shook" method; and as I have never had it fail, and neither have I ever seen it in print, I thought I would give it to the readers of Gleanings.

Owens, Ariz. Mrs. Ralph Bulkley.

[But your plan is in reality the "shook-swarm" method, only you wait for the colony to show that it is ready to swarm by actually making the attempt. I think you would save a great deal of annoyance by shaking the bees before they actually begin to swarm.—Ed.]

NOT A HAT, BUT AN UMBRELLA SUN-SHADE SUPPORTED FROM THE SHOULDERS.

Several years ago, when I was living in Mississippi, I saw sun-shades made to wear in hot climates. They were fastened to the shoulders, and did not touch the head at all. They were about the size of a lady's ordinary parasol, but shaped somewhat like a wagon sunshade. I have thought they would be a fine thing for bee-keepers in the West where apiaries are worked in the sun. The advantages are, they are fastened to the shoulders, leaving the head and hands entirely free. You can wear a hat under the sun-shade, to keep the head much cooler than when the sun shines directly on the hat. The sun-shade shades the whole body, but should not be made too large to pass through doors easily. Do you know where they can be had? I think you can easily make one if you get the idea. I want one to try this season, and I believe they are just what is needed, as it is very exhausting to work all day stooping over hives with the sun beating down on one's back. W. C. Gathright.

Las Cruces, New Mex.

[We don't know where such shades could be obtained; but no doubt some one of our many readers could tell.—Ed.]

A CRITICISM ON GLEANINGS' MAKE-UP.

On your invitation, "do not hesitate to speak about any thing you don't like," Gleanings, p. 227, I take the liberty of a few remarks.

After being twelve years a reader of Gleanings I am still as anxious to receive the next number as I was the first month of my subscription. At the end of each year the 24 numbers are carefully handed to my bookseller to be nicely bound, and then the new volume takes its place in my bookcase.

These few words are enough to prove how friendly are my remarks. Now, then, what I find that could be improved in GLEANINGS is the disposal of pages reserved to advertising-matter. For instance, in last number, March 15, at the beginning are 4 pages of advertising and 11 at the end. This leaves 7 pages which have to stay; 24 numbers multiplied by 7 gives 168 pages, or nearly a volume of no use. If these advertising pages were evenly distributed on each side, the matter would be of no consequence, as they could be easily pulled off for binding.

Another remark, please. Could not the literature be paged by itself? As it is now, when we remove leaves containing advertisements the number of pages jumps so much that the volume looks very incomplete, while it is all right. FRS. BENOIT.

Notre Dame des Neiges, Que., Can.

[In a journal like GLEANINGS it is not practicable to divide the advertising pages so that half of them shall come just before the reading-matter and the other half just after. So far as possible we try to group our advertising in such a way that goods of a kind can be massed together. Periodicals like GLEANINGS and other class journals are usually saddle-stitched; that is, the wire passes through the cover, clinching on the inside sheet in the middle. The journals that page only their literary matter are usually back-stitched—the stitches passing through the series of folded sheets near the back edge, the cover being pasted on. It is possible for such papers to page their literary matter, leaving the advertising matter unpaged. While there are a few like yourself who bind their volumes of trade papers, the great majority read them and cast them aside.—ED.]

HOW TO LOCATE AND KILL LAYING WORKERS IN A COLONY.

Dr. C. C. Miller:—I have read in the March 1st issue of GLEANINGS that Mr. C. M. Aarons can not get a laying-worker colony to accept any kind of queen. I had a colony that I worked on her over three months, and I could not make her accept a queen nor raise one from the combs containing eggs that I put into the hive. I made the following experiment, and it gave me fine results; and from now on, whenever I have a laying-worker colony, I play the "trick on them." Please tell Mr. Aarons to try it and report if he succeeds.

I take the laying-worker colony away from its place, say about fifteen or twenty feet, and place a new hive where the laying-worker colony was, leaving the old hive-bottom under the empty hive, and then I smoke all the bees out of the laying-worker colony. They surely all go where the old stand is, and then they will accept a queen or raise one if you give them combs with eggs. You will notice that, when you have smoked all the bees out of the laying-worker colony, there will remain two or three places of the hive (that depends on how many laying workers were there in the hive), bees clinging one to the other, and you can be sure they are there. The laying workers can not fly, as they are rather heavy, but they can not be picked out from among the working bees; and then I kill all the bees left in the old hive. I may destroy some of the working bees, but I get rid of the pest. J. E. LARRONDO.

Sagua la Grande, Cuba, May 16.

[This method of locating or identifying the laying workers is new so far as I know. I commend the treatment to any one who is troubled with any thing of this kind.—ED.]

A SMOTHERED SHIPMENT OF BEES.

We received a shipment of bees a short time ago from the other side of Cleveland—2 colonies by freight. They were strong enough to swarm (some of them) before shipping. The shipper nailed them up what we would call air-tight, making no provision for ventilation except $1\frac{1}{4}$-inch hole in the bottom of the hive, a few having holes in the gable end of cover. They were on the road about five days. The strongest colonies arrived as dead as a door-nail; the rest nearly gone up, only the weakest being in any kind of shape. The brood in all is scalded or dead. We gave instructions to shipper to cover top with screens, which would have brought them through all right. Had the weather been at all warm, all would have perished. We give the above to show the idea that some people have as to the requirements of bees when shipping.

Parkertown, O. H. G. QUIRIN.

[The shipper in this case should be made to suffer for his own folly—that is, his failure to follow your instructions.—ED.]

LIPPIA NODIFLORA; WHERE TO GET IT.

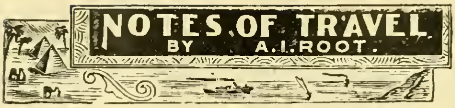
The experiment station at Tucson, Arizona, is co-operative; i. e., it is principally supported by the general government, hence a citizen of any State will be supplied with a trial supply of lippia nodiflora free of charge upon application. In March last they sent me a nice lot of plants. Every one grew, and all are beginning to bloom, and are running freely.

Corona, Cal., May 9. H. M. JAMESON.

OLD COMBS VS. FOUNDATION FOR BEES.

I was reading an article on p. 443 from Reginald C. Holle, which I don't quite understand. I think from the way he talks that the old combs were all solid pollen, and the queen would not lay in them. I never had the queen leave the old comb and go on foundation. I have taken foundation, all built out, and put it in with old combs, and the queen would lay in the old combs first. ARTHUR HEINKEL.

Mauston, Wis.



NOTES OF TRAVEL

BY A. I. ROOT.

THE CABIN IN THE WOODS.

About the middle of March I felt very anxious to get back to our cabin to see to my peach-trees, and to prepare the ground for planting potatoes, etc. Mrs. Root was not quite ready to go; and I really hope you will excuse me for not telling just *why* she was not ready to "share my bed and board" at the cabin in the woods. However, I think I may venture to say that, just *23 hours* after I started off alone, Rootville was rejoicing over the advent of another member of The A. I. Root Co. Mrs. Boyden (perhaps better known to our older readers as "Blue Eyes") is now the mother of *two* promising boys; so there are now not only five children but five *grandchildren.* When the older members of the firm get worn out, and have to be "turned out to grass" for a while to recuperate (sent up to the cabin in the woods, for instance), you see there is a prospect of young blood coming in to bear the burdens, like young bees hatching out day by day in a well-regulated bee-hive. Under the circumstances it was deemed best that I should try to get along for two weeks in taking care of myself. Now, while there alone on my ranch I met several of my happy surprises. One was to see the crimson clover I sowed the first week in September budded and blossoming gloriously. I sowed it where I dug 45 bushels of New Queen potatoes. Down here in Ohio I have recommended that crimson clover be sown in July or August; but up in Northern Michigan you can sow it as late as September. One reason I did so was that frost never heaves clover out, nor any thing else, in that locality; and I was very agreeably pleased to find not a plant, apparently, of the crimson clover missing. It may have been a favorable winter — I do not know. The crimson clover commenced blossoming the fore part of May; and by the first of June it was, in spots, the prettiest sight for a clover-field I ever saw anywhere. Perhaps I had better tell you it is the first clover I ever attempted to sow broadcast in my life. Of course, I got it too thick in spots, and too thin in others; and I was so poorly satisfied with my skill in sowing clover that I bought a machine right away afterward. Well, where I got the clover the thickest it seemed to do the best. The first day in June the crimson heads were so close there were spots where there were *solid beds* of crimson; and the Italian bees were humming over it, as well as bumble-bees, as I never saw them anywhere else. The plants do not branch out nor grow as tall as they do in Ohio; but there was an immense amount of green stuff for feeding stock or for turning under. It would seem as if the clover standing now, on a square yard, would be all a man could carry. If it were not among the peach-trees I would try to plow under a little piece to see what it would do for potatoes. Perhaps I may do so yet.

Now, friends, here is a wonderful chance to get fertility. Plant your potatoes so that they can be dug and got out of the way by September 1, and you can grow a magnificent crop of clover to be turned under for *more* potatoes (or any thing else, for that matter), providing you do not plant your potatoes until, say, about the middle of June; and I think most potato-growers in the Grand Traverse region have decided that is the best time to plant. Perhaps the soil does not average as well as that around our cabin. In fact, I am pretty sure of this. The timber on our place is mostly beech and maple, with a sprinkling of hemlock. I have before remarked that it is the fashion in that region, after the woods are cleared off, to grow potatoes year after year for I do not know how long, without turning under clover or any green crop at all — at least, this is largely the fashion. They do not want to spare the use of the land; but with this crimson clover you can turn under a tremendous lot of clover, and grow potatoes every year right along. Why, if I can do the same thing again (and I do not know why I can not) it just makes me full of enthusiasm to think of it. I know crimson clover has been pronounced a failure; but I have grown it successfully for six or seven years here in Ohio, without one failure, and I have grown one crop in Northern Michigan, as I have told you. Why, I would give a lot to have the readers of GLEANINGS see that growth of crimson clover.

ANOTHER OF MY HAPPY SURPRISES.

A year ago I mentioned that our good neighbor Mrs. Cole brought us about a dozen bunches of pansies. She said they were all different. We had a gorgeous display of pansies all through the summer and fall. Mrs. Root first said the blossoms would have to be picked off so that the plants might not exhaust themselves in growing seed; but when the roots got down to that rich woods dirt it was just out of the question to pick the blossoms, so they went to seed and grew a lot of it. Now, in sowing my crimson clover, when I got up near the house where the pansies are I did not intend to sow any; but the seeds flew over, some of them among the pansy-plants. Well, this spring little pansy-plants were peeping out for a rod or two in every direction. The wind or something else carried them also clear over among our strawberry-plants. Well, just about the time the crimson clover and strawberries were coming in full bloom those seedling pansies were peeping out here and there in every direction. The effect was wonderful. Every man, woman, and child who came near the cabin uttered exclamations of surprise to see the various-hued pansies, no two alike, glittering and gleaming out from among the clover and strawberry foliage. Why, they were "too comical for any thing," as the little girls say; and the funny part of it was, every last pansy, big and little, turned its face toward the front door of the cabin. You see they were all on the north slope above the cabin; and in turning their faces toward the sun it seems as if they took particular pains to face the front door. The boys who work for me told about it, and the little girls in their homes came up to see our pansies and crimson clover, and they told their mothers, and their mothers came; and yet all this gorgeous display of beauty came unexpectedly. It was indeed a "happy surprise." Just north of the cabin, on the hillside, I planted six plants each of twelve different varieties of strawberries. They were sent me by Mr. Matthew Crawford, of Cuyahoga Falls, O. I took care of them myself last season, and the raspberries and other wild plants of the woods were so determined to grow up among those strawberries that I began to think along in the fall I should hardly get my money back for all the time I spent. In fact, I was a little disappointed at the growth the strawberries made. I remember thinking that perhaps there was a little too much clay in the sand on that comparatively hard and stony hillside. Besides, it was so full of roots of trees from stumps that were too green to dig out that many of the weeds had to be pulled out by hand. Well, this spring that strawberry-bed was another of my surprises. The foliage was not only larger than any thing I had seen before, but the blossoms were large enough and handsome enough to make beautiful bouquets; and while the frost down here in Ohio for a long while gave every strawberry-blossom "a black eye," up there in the woods there was not a blossom, big or little, spotted by the frost; and when I left there, June 1, the long stems of fruit were lopping down in every direction, under their loads of great green berries. I shall have to tell you later the outcome.

By the way, this suggests to me that some of the finest results with strawberries I have ever seen were on new ground, where the woods had just been cleared off. This new ground is nice for potatoes or any thing else, but seems to be specially suited for great crops of strawberries.

Now I want to give you another short chapter that perhaps might belong under the head of Our Homes.

There are many homes in our land, entirely under the charge of men-folks—sometimes temporarily, and, again, right along. A good many times it is very desirable that the good wife have a vacation by herself. Very often there seems to be no way for the husband but to keep bachelor's hall. It is hardly worth while to think of hiring a woman or cook of any kind during the temporary absence of the wife. Just now it is hard to get help anywhere, outdoors or in; but a man who works on the farm needs to be well fed. He may not only lose money by being on scant rations, but he may lose health and possibly life. Think of poor Rambler. Now, I hope I may be able to give some helpful suggestions. If you can not have a woman or anybody else cook for you, you can afford to have the best of every thing that is to be found in our best fancy groceries in the large cities. A good square meal in a city hotel or restaurant costs about 50 cents; but the food that the average man requires three times a day probably does not cost 10 cents — sometimes not over a nickel. The difference between this and half a dollar is to pay for the cooking expenses, for the various dishes, rent of a convenient room on the street, taking care of the institution, etc.; therefore the man or boy who does his cooking can have plenty of the best of every thing, and still make money. You can well afford to have not only all the butter, eggs, and milk you want, but you may have potted chicken, boned turkey, canned fruits, vegetables, etc., without feeling you are extravagant.

A year ago I spoke of getting along with only a few dishes—that is, where you board yourself. A part of the time during the last two weeks I had helping me five men and boys, and two teams. I chose to set all these people at work so as to get my plowing and planting done quickly, and get back here to Medina. I had not much time for cooking, so I began to study the matter; and I want to tell you of one little invention of mine that I think may be helpful to the women-folks. Perhaps they will smile when they are told their old friend A. I. Root presumes to teach *them* how to cook. Wait a minute. I have often told you of my fashion of drinking water hot instead of cold. I have told you of how I would sometimes gladly give a dime or more for a drink of hot water when I am in a hurry. Well, for years I have been in the habit of having in the summer time things handy so I could get this hot water myself. First I have a little coal-oil stove that cost perhaps 50 or 75 cents. Then I have a quart tin dipper, made of the very thinnest tin that can be found. The thinner the tin, and the less cold metal there is in it, the quicker it will heat over a coal-oil or gasoline flame. I pour into this dipper just the quantity I want to drink—not a spoonful more. Then this is heated over the flame, either coal-oil or gasoline. In the winter time I often heat it by pressing the round bottom of the dipper on top of a hot stove. With this thin tin pressed close to the top of the hot iron of the stove, the water will boil almost instantly, so I do not have to "wait for the water to boil," when I am in a hurry. Well, I had this arrangement in my cabin. One day in a great hurry I thought I would try cooking an egg in the tin dipper. This dipper is made of pressed tin. There is no seam in the bottom. It is round, like the bottom of a wash-bowl. Let me digress a little here.

Years ago, when I was making candy for the bees I had much trouble in having the sugar burn around the sides of the utensils I cook it in. One day I happened to be on the fairground where the candymakers were at work. I noticed they had a little fire made of charcoal. Their sugar and water were in a copper dish with a round bottom. The dish was large enough so the heat from the charcoal fire could be applied just under *the center* of the pan of syrup. The outside edges were far away from where the heat was applied. In this way they made the hot sugar boil rapidly, without any burning, because the copper boiler was large enough to be cool all around where the heat was applied. I have been thus explicit because it is quite important to understand how it is we can cook a variety of things nicely without any burning around the edges. Now let us go ahead.

I put a piece of butter in the tin dipper, say half the size of a hickorynut; then I held it above the flame of the lamp until the butter was melted, and about as hot as it could be without burning around the edges, applying the heat, of course, to the center of the bottom of the dipper. Then I broke an egg and dropped the contents carefully in the melted butter. Now, by holding the dipper in my hand, and varying the distance between it and the flame, or, if you choose, turning the flame up and down, I found I could cook an egg beautifully in three minutes by the watch; and to prevent it from sticking to the bottom of the dipper I kept constantly shaking it around. In fact, after it was cooked it would slip out of the dipper itself on my plate. If I wanted an egg turned over and cooked on both sides, it took about four minutes. After the egg was cooked I could fry enough sliced potatoes for one meal nicely, in about the same time I cooked the egg; and in the same way I warmed up or cooked a variety of articles. When done I took a piece of soft bread and wiped out the butter from the clean bright tin. Lastly, I gave my dipper a good rubbing with a piece of soft newspaper, when it was almost as clean as when I commenced. A very little soap and hot some water made it perfectly clean, and at the same time furnish dishwater for the rest of my dishes.

Now, may be the mothers in many of our homes, who have been absolutely obliged to economize time, know all about what I have been telling you; but I am just egotistical enough to think that my plan as given above is far ahead of the way in which the average hired girl operates. I did not waste any food, and I did not have any dirty dishwater. I cooked a good wholesome meal, and had every thing put away, and the table slicked up, in not much more than half an hour. In the way of fruit, I had excellent canned strawberries that Mrs. Root put up last summer. For drink I sometimes used milk; and when I did not have it handy I used malted milk. If I wanted a cup of tea for a change I could have boiling water with my tin dipper in less time than any other apparatus for the purpose I have ever seen, and the dipper was always bright and clean until—I do not like to tell the rest of it, but perhaps I had better. When I was cooking an egg one day I had got it to going nicely when one of my boys came to the door to ask about the work. I thought I could tell him before the egg would take any harm; but I am afraid, as a result, I shall have to invest ten cents in a new dipper—that is, if I want to have one that looks as comely as my old one did for many months.

OUR HOMES,

BY A. I. ROOT.

Thou hast been faithful over a few things, I will make thee ruler over many things: enter thou into the joy of thy lord.—Matt. 25 : 21.

From very early childhood I have been interested in the matter of flying-machines, especially with the idea of having a machine that would fly without the aid of a balloon; and I was a good deal disappointed when I read in the *Scientific American* (I think I commenced reading that periodical when I was about twelve years old, and I have read it pretty thoroughly ever since) that there was no force yet known to mechanics capable of exerting a power or force in proportion to its weight so as to fly like a bird; and I do not know but this may be true even yet. All the machines and air-ships I have seen described have depended on a bag filled with hydrogen gas to buoy them up while the engine and propeller-wheels pulled it against the wind or the reverse.* I do remember, however, that some time between 1850 and 1860 somebody suggested there *was* one force known to mechanics, of sufficient power to move a flying-machine—the explosive force of gunpowder; and as a proof he suggested the sky-rocket, which flies not only to a great height, but with incredible velocity. The *Scientific American* replied, however, that, although many experiments had been made to produce an engine moved by the explosive force of gunpowder, there were very great objections, not only in the way of danger of such an apparatus, but the accumulation of soot and acids that would rust and corrode the machine. After the discovery of kerosene, however, and the low price at which gasoline and benzine were produced as by-products, the matter of producing mechanical power by "explosion" was revived. In 1876, at the Centennial Exposition in Philadelphia, I saw an engine moved by exploding a mixture of common coal gas and atmospheric air. The explosion lifted a great chunk of cast iron two or three feet high. In falling it moved a balance-wheel; and when it came opposite a point near the bottom, another explosion gave it another hoist, etc. It was a great curiosity to a great many people besides myself. I was then 36 years old. From that time to this, inventors have been at work on gas-engines. If a little gasoline is allowed to evaporate in a close room, and the gas thoroughly mixed with air in the room in just the right proportion, it will blow up the room like a charge of gunpowder. But while the gunpowder would leave a lot of foul smoke, the gasoline mixture leaves almost nothing. In view of the many accidents and deaths resulting from explosions of this kind, the world at large can not be told too often of this matter. Scarcely a day passes but that we read of somebody who smells escaping gas in the dark, and then *lights a match* to see where the leak is.

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* Perhaps I should add right here that I am well aware there are floating or gliding machines that, when started at the top of a hill or high cliff, will float as a hawk or other large bird floats a long time on its outspread wings without giving them any motion. It has been said that, when we get a successful *floating* machine, we shall have mastered the question of *flying* machines. A few weeks ago while at Miami, Fla., a strong wind was blowing from the ocean against a sloping bank of sand. This sandbank diverted the wind so as to make an ascending current. A great lot of crows and other large birds had found this ascending current of air, and were having quite a frolic by letting it keep them suspended without any motion of their wings whatever. Yes, the current would occasionally raise them bodily up away from the earth. They learned by what we might, perhaps, call instinct, to shift their wings and tails so as to glide down hill in the direction from which the wind comes—or at least it would seem they were going down hill, but in reality the ascending current keeps them up, and sometimes raises them still higher. I figured this problem out in my boyhood, when the question was discussed as to how these floating birds could keep up in the air without any flopping motion of their wings; and if I am correct they never do this—in fact, they can *not* do it unless they hunt up a spot in the great ocean of air above us where there are ascending currents.

Well, friends, you all know more or less by this time about gas-engines. That first machine in Philadelphia was constructed with the idea that, after the explosion, it would take a little time, say a quarter or half a minute, to get up some more explosive compound and touch it off. Our gas-engines now fill the cylinder with just the right proportion of air and gasoline, and touch it off by means of an electric spark a thousand times a minute, if I have made no mistake. Why, these little motors fairly hum until the sound of the repeated explosions almost makes a musical note.

A few days ago it was my pleasure to visit Cleveland in order to see a new automobile that was sold at only $375. I took my seat beside the operator on the public square, right in the heart of the great city. It was in the middle of the afternoon, and the streets were filled with electric cars and vehicles of every description. My companion made his little machine (for it looked little beside the big vehicles of its class) dart in and out in front of street-cars, right before horses going at a rapid rate. He turned corners so abruptly that I had to cling to the seat to prevent being thrown out. Then he stopped so suddenly I had to cling in a like manner for fear of being flung over the dashboard. Come to think of it, however, there was not any dashboard, for it was a "buckboard" automobile. Then when he got a little out of the crowd, in the suburbs of the city, he began letting the thing go, for it seemed like a spirited young colt that only wanted to be let loose. All this was done with the gasoline-engine I have been describing.

At one point, when we were going at a pretty good speed, something needed both of his hands for adjustment, and he asked me to take the steering-lever for a minute. Perhaps he thought I was used to handling such a machine; but I believe it was the first time in my life I ever "held the reins" of an automobile. In an instant, almost, the machine threatened to go into the ditch; but I brought it around in time, and, as might be expected, in my eagerness and fright to avoid the ditch I whirled it around so abruptly that it looked as if I might go into one on the opposite side. Pretty soon I got the hang of the thing a little, and made it go straight in the middle of the pavement. A city ordinance forbids running faster than 15 miles an hour; so each driver has to watch and see that he doesn't go faster than a quarter of a mile in a minute. My companion said he could easily go 30 miles an hour if the city would permit it. And now I am coming to the point of my story.

I said to my friend, "What do you suppose would happen if a drunken man, or a man partly drunken, would get hold of an automobile?"

"Well, we have had some such cases; and if there did not happen to be a policeman to arrest him promptly, he might be the means of destroying property, and perhaps many human lives, in just a second or two."

It is a bad thing, friends, for a drunken man to get hold of a high-spirited horse; but it would be ever so much worse with an automobile. When I had hold of that lever for just a few minutes I had a vivid conception of the way one feels when he not only guides one of these machines, but when he feels that almost unlimited power and speed are ready to do his bidding. In the Arabian Nights we are told of the powerful genii that were ready to perform herculean tasks at a simple wave of the hand of the possessor of the magic lamp. For centuries people have laughed at these idle tales, but now it seems as if they were coming to pass. This new mechanical force of many horsepower is untiring. When we have a long journey to make with a horse, we watch him to see how he is standing the journey; and every good man and woman is very careful not to task him beyond his strength. Toward the close of the trip we say, "That horse is too much used up. He ought not to go another mile to-day." Now, it is hard to get over this feeling when you are riding in an automobile. You can hardly comprehend that, so long as the tank contains gasoline, the machine is as ready to bound ahead in response to the movement of the lever, after it has run one hundred miles, as it was in the morning. The iron and steel may wear out, but they know no fatigue.

Just at this wonderful stage of invention there is some clashing between the owners of these machines and people who drive horses, especially the farming community. There is an excellent chance to exemplify Christianity and a Christlike spirit on both sides. While Ernest and I have been exceedingly careful in riding through the country, there has been one or two who condemned us and our machine in pretty severe terms. The horses have not yet learned about the new conveyance, but they are fast learning. A great many of their owners pleasantly insisted that we go right ahead while they *make* the horse behave himself and teach him that the machine is all right and not to be feared. Very likely some of the drivers of automobiles are overbearing. In the first place, the machines cost a lot of money — from $500 to $2000 or even $3000. The man who owns one, quite often (if not always) feels a little proud to display to the world the fact that *he* has money enough to go in company with millionaires and bankers and other men of capital. Then he is apt to feel proud of that wonderful power subject to his control. There is a great temptation to induce the people to rush out from their homes, and stare as he goes flying through the streets or over the country roads. There is a responsibility resting on the person who runs an automobile. If he is a professing Christian, an additional responsibility rests on him. Mrs. Root objects to having one or riding in one, just because it is likely to provoke ill feeling. Now, this is hardly right. While taking that ride in Cleveland there were automobiles coming and going all the time. Sometimes half a dozen would be in sight at once. We must have passed forty or fifty in just one hour's ride. They were driven not only by gasoline but by steam, and some by electricity. They were delivering merchandise about the city, and doing business of almost all kinds. It would be foolish for the masses to condemn automobiles just because they are at the present time mostly in the hands of the rich.

Dear reader, I have given you a little glimpse of the responsibility that rests on one who owns one of these machines. I have given you a glimpse of the temptations that beset the fortunate possessor of one. I have suggested to you the importance of having calm, sober, clear-headed men—yes, and women too—who have the love of Christ in their hearts—who have kindly feeling toward their fellow-men, who love even their enemies, and rejoice in an opportunity of doing good to those who hate them—that is, if there are any such. We want such people as these, if they are to be found, to run our automobiles, our electric cars, our locomotives, steamboats, and all these things. Where shall we find them? Every town and city in this whole wide world is searching for honest sober men who have wisdom and understanding. The papers are now giving us accounts of the shame and disgrace that are being revealed in one city after another in the way of public administration. It would almost seem as if honest men were not to be had at any price, to be intrusted with responsible positions. The proprietors of great factories are hunting for men who can be trusted. Hundreds apply for places, and the most of them do pretty well; but where can we find men for foremen? Oftentimes we find a boy who seems to be so conscientious and industrious that we decide to give him charge of the work in a certain room or department. Sometimes I, the senior member of our firm, shake my head, and say, "The boy is too young. It will hurt him, and hurt those who are under him, to put so much responsibility on him all at once. Wait till he is four or five years older." But perhaps the regular foreman is sick, and somebody must take his place at once. This boy knows more about the room than anybody else, and his record is excellent, and we conclude to try him a while. If I am around I usually have a talk with my young friend, and tell him of the dangers. Oh how many mistakes and painful things might be saved if some older person would talk to these boys, and drill them a little when they are suddenly pushed into places of responsibility!

Now, you can not all have the job of running an automobile or a locomotive or an electric car; but, dear friends, almost every one of you whose eyes rest on these pages is carrying a like responsibility *somewhere.* You do not know it, and perhaps you would not believe it, but it is true. You are on trial before God and your fellow-men. You say, "O Mr. Root! you do not know how I am fixed. You do not know how I am cramped, and shut off from the big world; you do not know how I have tried loving my enemies and doing good to those who hate me; you do not know how utterly useless such things are with the people who are around me."

But, my friend, I *do* know. You are not reading your Bible enough; and you are not patient enough in following its precepts, or you would not find things in that shape. The great wide world is watching and hunting for those who are faithful in few things. The great business world is looking for the boy or girl—yes, for the men and women—even those who are well along in life, who can be trusted with responsible positions. While taking that ride in Cleveland I saw a man who must have been between seventy and eighty years of age, on the street, sweeping up the droppings from the horses. If that man does his work faithfully—if he can be trusted out of his employer's sight—if he uses not only his muscle but his brain also in making himself useful, in caring for the streets of that great city, he will be promoted, and get better pay. I do not think there ever was a time before when faithfulness in few things was so sure to bring its reward and to enlarge the sphere of activity (and the *wages*) of the one who is faithful. Have you longed for more opportunities? have you wished that you had a little more *power* that you could bring to bear when things are moving so slowly? Well, the promise of our text is true. God and your fellow-men are measuring you; and as fast as you can bear more responsibility you shall have it. Every little while I run across some boy or girl who has made a pretty good record, and people are beginning to bid for them. Everybody is surprised at the salary they are offered. They say, "Why, that man is not worth any such money as that — he can not earn it." But pretty soon some other institution gets its eye on him, and he goes higher still. Then is the time that this person wants to be careful about getting—I should like to say the "big head," but I do not like the expression. Then is the time when this person is in danger of losing his Christianity. We should think that, with promotion, he would thank God and be more regular in his attendance at the prayer-meeting, and other religious services; but too often it is the other way. O dear friends, let nothing tempt you to forsake the religion of your fathers—to forsake that good old Bible from which I have taken my text. Let nothing tempt you to forget how God answered your prayers when you were humble and meek. "Blessed are the meek, for they shall inherit the earth."

DIVINE HEALING, ETC.

Bro. A. I. Root: — One year ago a preacher from a northern city settled here who claims to be sanctified. They (himself and wife) go by the name of divine healers—that is, they claim that, through God, they have power to heal all bodily diseases, no matter of what nature they may be. They have built a very fine church, but claim that no man must have his name on the church-book They say that, after a man is once converted, it is impossible for him to sin. He will not attend our churches, and claims our ministers do not preach the gospel. He does not believe in medicine. and says it's the Devil's work. Bro Root, will you please give us your views on the above matter through the columns of GLEANINGS?

Grove Hill, Va. C H. MAY.

Friend M., if I am correct, this matter of divine healing has puzzled not only philanthropists but some of our best doctors of divinity; and perhaps no better advice can be given to the world generally than the old text so much quoted: "By their fruits ye shall know them." When our Savior went abroad through the world healing the sick and casting out devils, good fruit followed his work. There never was any question about it, and I admit that for a time it seemed as if good and nothing but good was coming from the work of some of our divine healers. I think we should, however, always regard with suspicion any person or organization that leads people away from orthodox churches. Our older readers all well know that I for a time strongly upheld Dowie. When he began his attack on "doctors, drugs, and devils," I think that every good man and woman must have felt that he was in the wrong. Of course, there are doctors and druggists who might with some propriety be classed with devils; but he certainly is not warranted in his wholesale denunciations of the physicians of the world, nor in saying that our sickness is the work of the Devil. Very likely when you see this in print you can tell us that the church you describe is losing its hold on the people.

HIGH PRESSURE GARDENING BY A. I. ROOT.

KEEPING POTATOES OVER WINTER IN THE TRAVERSE REGION.

Some time last July, when our potatoes in Medina were all too badly sprouted and wilted to be really fit to eat, I visited my neighbor Hilbert, and found they had Russet potatoes just as dry and mealy, and just as nice for the table, as at any season of the year. I was surprised, and asked how he managed to keep them in good order till July. He said he did not manage at all, but just kept them down cellar. Then I asked him if he did not open the outside door nights, and close it daytimes. His wife replied that the outside door had been open day and night ever since there was no danger of the potatoes freezing. I requested permission to take a lamp and go down and examine the potatoes, and see the cellar. I found the outside door (on the north side of the house) wide open; but the bin where the potatoes were kept, right on the ground, was in a remote corner of the cellar, behind some central bins, so that no light and very little warm air got near them. The place was both cool and dry. The potatoes were in nice condition for either table or market. I think the sprouts had been rubbed off just once. I asked him if it would not pay big to keep potatoes in this way to be sold on the market in July, or when new potatoes are at their highest notch. He said he had often done this, and got a bigger price for them than at any other season of the year.

Well, I made up my mind then and there that I was going to have a place to keep potatoes that would do it successfully without the fussing to open and close doors, etc. Well, my friends, I have it, and am "happy." I have told you something about our barn with stone underpinning. At one corner there is a large outside door, wide enough to run in the wheelbarrow handily. To get the wheelbarrow to run on level ground, we dug a sort of ditch or channel. This answered also for drainage for the cellar if any water should come into it by hook or crook. As we have eavespouts on the barn I think no water has ever got in.

Well, the cellar is not *all* dug out; but we dug a narrow room, say six feet wide, deep enough so one could stand up and push a wheelbarrow, and then turned a corner under the barn, so that it would be dark and cool, even if the outside door is wide open. I stored in this cellar under the barn twenty bushels of potatoes, of different varieties, and the most of them in potato-boxes; and as I was afraid of its freezing, the boxes were set in on the ground floor, one tier deep. Old boards were laid on top of the boxes, and then a layer of corn-fodder, carefully removing every nubbin of corn so that we might not bait rats and mice. On the corn-fodder we placed two or three inches of dry dirt; then a lot of bean straw, perhaps six inches deep; over this a large sheet of enamel cloth which we used to spread over piles of potatoes in the field.

I took all this precaution because the barn is a rather open structure. I put on the bean straw because I did not want my enamel cloth to lie on the ground, for fear it might injure it. The potatoes wintered beautifully. When opened up during the last of May they were just as dry, and the late varieties were almost as free from sprouting, as when they were placed there in November. The extra-early varieties had pushed out sprouts, especially those around the outside edges. For table use, June 1, they were just perfect; and as I did not plant all of them, the five or six bushels still there will, I think, keep till the first of July in the same way. This plan is better than burying them outdoors, because the barn shades them, and keeps all water off. The year before, we had some buried outdoors; but they got to sprouting quite badly by the last of April. I am satisfied that, where potatoes are buried outdoors, they will keep ever so much better if protected by some kind of cheap roof so heavy rains can not soak down to the potatoes.

At the present writing (June 13) we find it *here* a very hard matter to keep potatoes in good order for table use. My impression is, it is next to impossible to have potatoes keep here as they do in Northern Michigan. I do not know exactly why, either; but if this is true, potatoes had better be wintered over in the northern regions, and kept there until they are wanted, and then shipped to our large cities, say in May, June, and July. Why, just look at it. As we go to press, old potatoes are quoted in the Cleveland market at 90 to 95 cents per bushel; new potatoes, $1.50 to $1.75. Nice old potatoes may go still higher before new ones get low enough to let them start the other way. Of course, the recent floods in the South have had much to do with cutting off the usual shipments of early potatoes for the Northern cities; and this accounts for the shortage and high prices on both old and new potatoes. Well, now, if a grocer had a few barrels of old potatoes like those I have described, wintered in Northern Michigan, to set outdoors on the sidewalk by the side of the new potatoes that he is obliged to charge 50 or 60 cents a peck for, I think the average buyer would take the nice firm old unsprouted potatoes, even if the price were the same. Why, there is here a tremendous margin and a tremendous profit.

I suppose cold storage would be a great help in keeping old potatoes in nice order. I have been watching the market for years past, just at the time when new potatoes and old were beginning to compete with each other; and I am sure there is a good chance right here, not only to make money, but to furnish the world with a good wholesome quality of this great staple food product. If you take notice, new potatoes are held at a dollar a bushel or more for quite a long while after they first make their appearance in the market. At $2.00 a bushel I could *almost* grow potatoes profitably, started under glass. But keeping old potatoes in a good state of preservation along the lines I have mentioned will be much easier than growing new ones extra early.

AN AUTOMOBILE TRIP THROUGH MICHIGAN.

Michigan is a big State, and there are lots of good people in it. I judge so from the fact that over 800 of them are taking Gleanings. I was about to say they were reading Home Papers, but that may not be true. While I have greatly enjoyed the glimpses of the great State while riding through on the cars, I have for several years considered the matter of taking a trip with a horse and buggy, all the way from Medina to the cabin in the woods. But no horse could hold out the way I want it to do; for when I get really started I want to be up about four in the morning — that is, when the days are long enough, and travel until seven or eight at night; and when it is moonlight, perhaps do some traveling in the evening. The horse would need rest; but the automobile, with plenty of gasoline knows no fatigue. Perhaps I am mistaken about this; and if so, my visit with you may be a little longer. But I was planning to visit a great many homes in the course of a day, stopping, say, fifteen or twenty minutes and get a glimpse of your home and its environments. If you have any beautiful springs near by, flowing wells, or, say, " happy surprises " in the way of high-pressure gardening, I may decide to stop an hour or two. Just now I am reminded that, years ago, I decided I would be very careful about telling what I am *going* to do, because so many times the thing I had planned did not come to pass. Well, the only reason I mention the matter now is that you who are located somewhere near the line between Toledo and Traverse City might, if you feel like it, say on a postal card that you would be glad to see the editor of the Home Papers. Now, I can not promise to call on *all* of you; but I will try to look in on as many as possible. I may go one way one trip and back again on a different route. Will Mrs. Root go? No. She says she knows by experience that she never could stand flying about from one point to another (with hardly time to eat and sleep) the way I usually do when I am visiting. You can address your cards to Medina or to Bingham, Leelanaw Co., Mich. They will reach me in due time either way.

CAN A MAN BE BAPTIZED WITHOUT BECOMING A MEMBER OF ANY CHURCH?

Mr. Editor :—I am now in trouble. I thought GLEANINGS was published strictly in the interests of bee-keeping, and no sectarian or orthodox religion, and no partisan politics were admitted into its columns, not even questions of political economy, when these questions gravely affect the prices of our honey.

On pages 782 and 824 brother A. I. R. gives us advice concerning our duty in attending church, and on pages 800 and 801 Dr Miller and the editor give us another lecturing. Now, I know I can't reply to these different articles without starting up a religious discussion that would not be permitted; but I am in trouble, and desire to ask all you brethren what I shall do.

Up to some six or eight years ago I was guilty of using profanity. I tried to live honest all my life—really had an innate desire to practice the golden rule, but I sometimes was guilty of taking the name of God in vain. At last I became convicted of my besetting sin. I looked around me, and saw that all other sinners could give an excuse for their sins. The drunkard could give as his excuse that he liked the taste or effect of his "dram." The gambler gambled because he liked the sport ; but for my sin there was no excuse under the heavens. It seemed that I was convicted. I decided to live a Christian life I began to read my Bible as I never had before I soon discovered that it was my duty to be baptized, and that immersion was the ancient mode I soon discovered that the orthodox denominations did not give us the great depth of meaning attached to the ordinance of baptism, but I wished to consecrate myself to Christ, and to have that consecration witnessed by baptism. I applied to a missionary Baptist minister, and asked him to baptize me. He told me he could not do so unless I would join his church. His church teaches some things that contradict the plain statements of the Bible, and make Paul's words, "attain to immortality by patient continuance in well doing" meaningless. They have some things in their creeds that I can't indorse. So, to join that church simply to obtain baptism I would be acting the hypocrite.

I am in earnest in this matter. I can't afford to be dishonest with myself on so important a matter as my own salvation. What am I to do ? Can't some of you brethren tell me? Seeing the matter in the light I now see it, I could not join any orthodox church without violating God's command to "come up out of her (Babylon), my people." Of course, I can't give the scriptural proof of the light I now see, without starting a discussion on this question. I am asking for light—for help. I can't understand that any orthodox denomination preaches the great depth of meaning attached to God's divine plan of salvation, nor to the gospel of glad tidings. They teach contradictions in the Bible which give infidelity a chance to attack the blessed word of God. Any help on this matter would be greatly appreciated. T. K. MASSIE.

Tophet, W. Va.

Friend M., your kind letter gives us additional proof, if any proof was before wanting, of the different kinds of people it takes to make up this world of ours. I have read and heard related many strange religious experiences, and many of them as honest and sincere as the one you relate; but I never before, that I can remember, heard of a person who felt that the Holy Spirit impressed him with the need of baptism, and who at the same time felt as you do, that he did not wish to unite with any body of Christian people. Since you have written so frankly to your old friend A. I. Root, I think you will have at least some confidence in his belief that Christian people ought to be banded together. The maxim, "United we stand, divided we fall," will certainly apply to the Christian religion as well as to every sort of business we find in this world of ours. In business nowadays we are told it is of the utmost importance that, no matter what a man's calling may be, he should unite with others of a like calling. A recent prominent lecturer told us that, while it was quite customary (and the fashion) a few years ago for people of the same occupation to be clashing and cutting prices, this new century seemed to be ushering in a sort of brotherhood among people of like occupations. Capitalists are uniting and forming syndicates; laboring men are uniting and forming trades unions; yes, bee-keepers are uniting in a union to protect their interests and do things that would be utterly impossible for each man fighting alone. In a like manner, *churches* are almost a necessity. How can we build comfortable places of worship, how can we send missionaries to foreign lands, how can we pay the minister, unless a lot of us unite and work as a unit? I think you are making a mistake; but, notwithstanding, if I were a minister of the gospel I think I would baptize you whether you united with my church or with no church. I hope my clerical friends will forgive me if I am not orthodox on that matter, or I fail to see why the plan is not practicable.

In regard to creeds, I have been told by members of ever so many different denominations that they could not conscientiously indorse *every* part of the creed they subscribed to; and we find great numbers of people standing outside because they can not find any church creed that exactly fits their convictions. When I united with the Congregational Church here in Medina I did not feel any promptings of the Holy Spirit toward the communion service. I talked the matter over with my pastor and the deacons of the church. They advised me to subscribe to the church creed notwithstanding, saying that, later on, I would see the value, and feel happy in being permitted to commune with my brother-Christians.* All this has come true. It is not at all likely that the creeds of the various churches are just exactly what they might be, or perhaps will be in the future. They were framed by fallible men. Notwithstanding this, I believe the Holy Spirit is leading. The various church creeds have been changed, and are being changed, as you perhaps know; and for that reason I would advise you not to put too much emphasis on your feelings in such matters—I should like to say your *notions*, for I believe that the best Christians often have peculiar notions in matters that are not particularly important.

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* Dear brother, do not be in haste to call certain things, that certain Christians often do, hypocrisy. I am sure there is no hypocrisy on my part when I indorse the creed of our church without having feeling or conviction on this matter of the communion service, as I have explained to you. If each individual insists on having a creed that just suits his convictions in every respect the result must be *still more* denominations, and I am *sure* there are enough and *more* than are needed already.

WAX PROFITS.

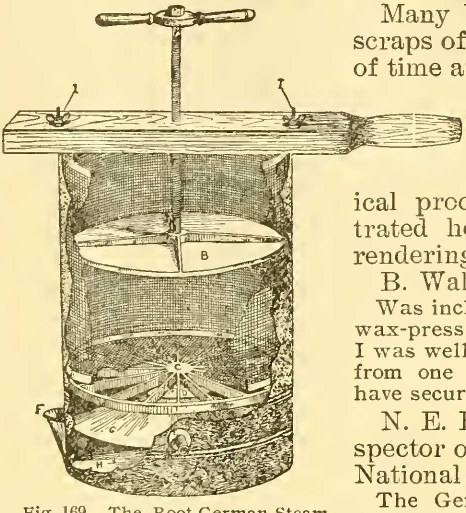


Fig. 169.—The Root-German Steam Wax-press. Price $14.00. Shipping weight, 70 lbs.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated herewith fills a long-felt want in rendering wax.

B. Walker, Clyde, Ill., says:

Was inclined to believe at first that the German wax-press was a failure; but after a thorough trial I was well pleased. I secured 30 lbs. more wax from one day's use of the machine than I would have secured by the ordinary method of rendering.

N. E. France, Platteville, Wis., State Inspector of Apiaries, and General Manager National Bee-keepers' Association, says:

The German wax-press is by far the best machine or process to save wax from old black brood-combs.

Manufactured by

The A. I. ROOT CO., Medina, Ohio, U. S. A.

We are now paying 30c cash, 32c trade, for average wax delivered at Medina.

For 1903 You Require I Supply **PERFECT QUEENS**

Norristown, Pa., March 14, 1903.

Dear Sir.—Find inclosed $1.00 for one untested Golden queen. . . . I wish you would send a queen just like I bought of you last spring. It is one of the best and prettiest queens I ever had. At present my apiary numbers 35 colonies. Yours truly,

HENRY A. MARKLEY.

These queens are giving general satisfaction. Try some. Address

GEO. J. VANDE VORD, Daytona, Fla.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Do You Know that you could come nearer getting what you want, and when you want it, from the New Century Queen-Rearing Co. (John W Pharr & C. B. Bankston), than anywhere in the United States? Untested, 50c.; tested 3 and 5 band, 75c; all other races, $1.00. Send for circular. **Berclair, Goliad Co., Texas.**

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence, ; Doniphan, Missouri.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5 banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity, from 5 to 35 miles apart, February and March, $1.00 each, or $9.00 per dozen. All other months, 75c each, $4.25 for six, or $8.00 per dozen. Tested queens of either race, from $1.50 to $3.00 each. Breeders from $3.50 to $10.00 each. 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**

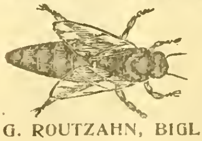
P. O. Box 79, Beeville, Bee County, Texas.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

RED-CLOVER QUEENS!



We are now ready with as fine queens as can be reared. Untested, 75 cts.; tested, $1.00; breeder, $3.00. Nineteen years in queen-rearing. Send for my circular; it is worth $10 to you. Satisfaction guaranteed.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENN.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa., writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens Before July First.

	1	6	12
Selected Warranted....................	$1 00	$5 00	$9 50
Tested	1 50	8 00	15 00
Select Tested............................	2 00	10 50	
Extra Selected Tested—the best that money can buy...........	4 00		
Two-frame Nuclei, no Queen........	2 50	14 00	25 00

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Strong Testimony in Favor of

Moore's Strain of Italians

Prof. Frank Benton, of Washington, D. C., whose name is familiar to all progressive apiarists, says:

"I have several times, in the course of correspondence, and in conversing with bee keepers, had occasion to answer the question: 'Where can the best Italians be got?' It is, perhaps, not an easy thing to say, with certainty, but at least I have felt I might be able to tell where GOOD ones could be obtained. A number have been referred to you, for, although I have not tested your stock personally, I thought I knew pretty well, from general reputation, its character. A bee-keeper near here—Geo. A. Lanphear, of Vienna, Va.—who got some queens of you on my recommendation is so well pleased with them—in fact, gives your bees such a good recommendation to me for gentleness and working qualities, particularly their working on red clover, that I thought I would like to try some myself."

I was not aware that Prof. Benton was recommending my stock until I received the above letter. Such testimony as this certainly has great weight, and shows why my business has grown so fast.

Prices for daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, $1 00 each; six, $5 00; dozen, $9.00. Select untested, $1.25 each; six, $6 00; dozen, $11.00. Safe arrival and satisfaction guaranteed. Send for descriptive circular.

My 23-100 breeder was awarded a $25.00 prize by The A. I. Root Co. for producing bees showing the longest tongue-reach on record. Competition was open to the whole world.

I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

Queens

My specialty is queen-rearing. I rear two strains only—Long-tongue Red-clover Three-banded and the Golden Five-banders that work red clover as well as the three-banders. These two strains are the best bees in this country, all things considered. I furnish more dealers with queens than any other breeder in this country. Why? Because the queens give their customers the best satisfaction. I insure all to be purely mated. Untested, 75c each; tested, in April, $1.25—after April, $1.00 each. My former address was Caryville, Tenn., but my queen trade has doubled for several years and I have moved to Texas. Remit by postal money order to **Daniel Wurth, Karnes City, Karnes Co., Texas.**

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each: $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. ORDER "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Readers OF Gleanings

desiring to know the results of my forty years' experience in rearing queen-bees, and to learn of my new process of producing queens, can do so by purchasing a copy of IMPROVED QUEEN-REARING. The book and a valuable Adel breeder sent by mail for $2. Prospectus and catalog ready. *Adel bees have a world-wide reputation.*

Henry Alley, Wenham, Mass.

DURING SEPTEMBER, 1901,

the United States Department of Agriculture imported a lot of queens from the Province of Bergamo, Italy, one of which was sent to me to be tested. For prolificness and industry she and her offspring are second to none, and I am now prepared to fill orders promptly with her daughters or the best golden queens at $1.00 each or $9 00 per dozen. M. O. office, Warrenton.

W. H. Pridgen, Creek, Warren Co., N. C.

100 = Mounted = Queen=cells

and one sample of the Stanley Cell protector or Introducing-cage, for 70 cents postpaid.

Arthur Stanley, Dixon, Illinois.

ITALIAN BEES FOR SALE!

Full colonies, $4.00; three frames, with queen, $2.25; two frames with queen, $2 00; one frame, $1.50; queen, $1.00. **Mrs. A. A. Simpson, Swarts, Pa.**

Bred for Work

Terrace queens have given best of satisfaction; bred from selected stock; best of workers; very gentle, and fine color. Untested, 75c each: six, $4 25; twelve, $8.00. Tested, $1.00; six, $5.00; dozen, $9.50.

Harold Hornor, Terrace Apiaries, Mt. Holly, N. J.

HONEY=QUEENS, GOLDEN ITALIAN

are hustlers, and their bees are gentle and can not be excelled gathering honey. Untested, 90c; tested, $1.00; breeder, extra fine, $3.00, none better.

H. C. TRIESCH, Jr., Dyer, Ark.

PHACELIA TANACETIFOLIA, the great honey and forage plant, can be planted any time, while there is moisture. It blooms six weeks after sowing. Seed, 1 oz., 25 cts., postpaid.

O. Luhdorff, Visalia, Cal.

RED=CLOVER ITALIAN QUEENS, guaranteed to work on red clover; bred for business, in full colonies; honey-gathering and wintering qualities are prime object. Untested, $1.00; tested, $2.00 to $4.50. After July 1, untested, 75c; tested, $1.50 to $3.50. Send for circular list. I. F. Miller, Knox Dale, Pa.

FINE QUEENS FROM THE BLACK HILL APIARIES
Golden and Long-tongue. Write for price list. Reference G. F. Davidson & Son.

Carver & Mathis, Props., Verdi, Texas.

TEXAS QUEENS FROM LONE STAR APIARIES.
We are now ready to furnish you queens from the best stock of any race. These queens are equaled by few and inferior to none. Write for price list.

G. F. Davidson & Son, Props., Fairview, Texas.

Economy in California Travel

A double berth in a tourist sleeper, Chicago to San Francisco, costs only $6. The service via the Chicago, Milwaukee & St. Paul and Union Pacific line is thoroughly comfortable and satisfactory.

Thro' tourist sleeper to San Francisco leaves Chicago at 10:25 P.M. daily.

If you're interested, write for folder.

F. A. MILLER, Gen. Passenger Agt., Chicago.
E. G. HAYDEN, Traveling Passenger Agent, 217 Williamson Bldg., Cleveland.

A Great Paper Enlarges

The Feather, Washington, D. C., has been enlarged to nearly twice its former size, and is much improved in every way. The best features of the old size are retained. Positively the most beautifully illustrated poultry paper published. It's practical too. Subscription price, 50 cts. per year; 5 years, $1.00; 9 months and picture of fowls in natural colors, 25 cts.; sample free.

G. E. Howard & Co., 305 10th St., N=W., Wash't'n, D. C.

POULTRY JOURNAL

How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.

Inland Poultry Journal, Indianapolis, Ind.

Pure Italian Queens in State of Washington!

Untested, $1.00; tested, $1.50; after June, 25c less for either. Queens are reared by the swarming process. Mismating will be rare if ever. I keep only pure stock. **Robt. Mirring, Dryad, Lewis Co., Wash.**

The World's Record

for large yields of honey, my bees have stood the test for 30 years. Italian queen mothers a specialty. If you want to see the best and most novel queen-cage ever invented for introducing safely. Send for a queen and you will get one. Circular free.

F. Boomhower, Gallupville, N. Y.

HERE'S THE PLACE

FOR GOOD QUEENS PROMPTLY.

We are too busy raising queens to write big ads. Our customers like our queens, and we think you would too. We rear by best methods from best stock, and guarantee good queens. Our prices for select, $1.00; six, as they run, $4.50; twelve, $8.00. Free circular.

J. B. CASE, Port Orange, Fla.

THE VERY BEST GRADES AND WARRANTED TO BE PURE

HONEY

ADDRESS THE A. I. ROOT CO. MEDINA OHIO.

THE BEST FRUIT PAPER

Southern Fruit Grower

CHATTANOOGA, TENN.

Every grower of Fruits and Vegetables should read it.
Only 50 cents a year.
Splendid advertising medium.
Sample copy free.

SLUG SHOT kills currant-worms, potato-bugs, cabbage-worms, and insects on flowers; used 22 years successfully. **Sold by the Seed-dealers.** For booklet on Bugs and Blight, address

B. Hammond, - Fishkill-on-Hudson, - New York.

Chicago to Colorado.

New overland service via Chicago, Milwauke & St. Paul and Union Pacific line. Thro' sleeper and free reclining-chair car to Denver from Chicago 10.25 p. m. daily. No changes nor delays.

Booklets and folder free.

F. A. MILLER, Gen. Passenger Agt., Chicago.
E. G. HAYDEN. Traveling Passenger Agent,
217 Williamson Bldg., Cleveland.

Cuba.

If you are interested in Cuba, and want the truth about it, subscribe for the

HAVANA POST,

the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

HOW TO Make Money

Any one willing to work can make $18.00 per week selling our absolutely new Pocket Dictionary and Atlas of the World combined; 90 clear concise maps; 35,000 words defined; fits the pocket; worth a dollar to anybody. Send 25 cents for sample and terms.

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Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago. Ills.

A Wagon's Worth

depends upon its convenience and life. The life depends upon the wheel. You get every convenience of the **Modern Low Handy Wagon** and double its life by using

ELECTRIC Metal Wheels

For a few dollars you turn your old running gears or one you can buy for a song, into a new wagon. Straight or staggered oval steel spokes. The stoutest wheel you can buy. **Any height, fit any wagon.** No repairs, no rutting, light draft, long service. Let us send you free catalog to show you how it saves you money.

Electric Wheel Company., Box 95, Quincy, Illinois.

S. D. BUELL

Manufactures bee hives, and is agent for The A. I. Root Co.'s goods, which are sold at factory prices. Catalog sent free. Bees for sale. Beeswax wanted.

Union City, Mich.

The A. I. Root's Co's Goods in Oklahoma.

Save freight by buying of F. W. VAN DE MARK, RIPLEY, O. T.
Catalog free for postal.

Squab Book Free

Squabs are raised in 1 month, bring *big prices*. Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into*. Send for our **Free Book,** "How to Make Money With Squabs" and learn this rich industry. Address

PLYMOUTH ROCK SQUAB CO.,
19 Friend St, Boston, Mass.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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Don't spend spare time thinking what you might be if your salary were doubled! *Doing*, not thinking, will make your wish a reality. Our free booklet, "Are Your Hands Tied?" tells you what to do and how to do it. Thousands have already doubled or largely increased their salaries by following our plan. Under our guidance you can do the same. Act today! **I. C. S. Text-books** make it easy for those already at work to

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Mechanical, Steam, Electrical, Civil, Mining, Telephone, and Telegraph Engineering; Shop and Foundry Practice; Mechanical Drawing; Architecture; Plumbing; Sheet-Metal Pattern Drafting; Chemistry; Ornamental Design; Lettering; Book-keeping; Stenography; English Branches; Teaching; Locomotive Running; Electrotharapeutics; German; Spanish; French.

Circular free. State subject that interests you.

INTERNATIONAL CORRESPONDENCE SCHOOLS,
Box 799, SCRANTON, PA.

Tell all Poultry Troubles

to us. Our **poultry specialists** will answer and advise you free of charge. We carry a

FULL LINE OF SUPPLIES

Everything the best of its kind, from markers to incubators. Our catalogue will interest and profit you. Mailed free; ask for Catalogue D.

W. J. GIBSON & CO., (Inc.) UNION STOCK YARDS, CHICAGO.
Dept. Mgr., H. M. Horton, Director Nat'l Fanciers' Association.

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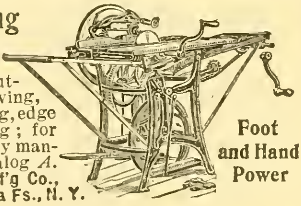
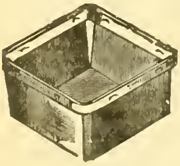


For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Fruit Packages of All Kinds.

—ALSO—



BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.

Seven Carloads of "WEED" New Process Foundation

Our Output for the past twelve months.

Read Your Name Thro' It!

Look for this brand on each package.
Machinery and process patented.

Have you ever been annoyed by sagging and buckling of brood-combs? Have you ever seen bees gnaw holes through some brands during a slack spell in the early honey flow? Have you not had bees pull down a large portion of sheets of surplus; and, where no separators were used, spoil not only one comb but the two adjacent? These annoyances are unknown in apiaries where foundation of this brand is used.

The A. I. Root Co., Medina, O.

The "Star" Ventilator

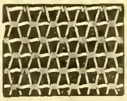
Storm proof, effective; for ventilating all kinds of buildings, barns, stables, and factories of all kinds. Send for illustrated booklet

Merchant & Co., Inc.,
Philadelphia, Brooklyn,
New York, and Chicago.
M'nf'rs High-grade Bright Tin

POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. *Sample Free.* 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. **Catalogue** of poultry books free. *Poultry Advocate*, Syracuse, N.Y.

JUST A LITTLE

more money will buy PAGE Fence, a fence that fences ALL the stock ALL the time. Catalog free.
Page Woven Wire Fence Co., Box S, Adrian, Michigan.

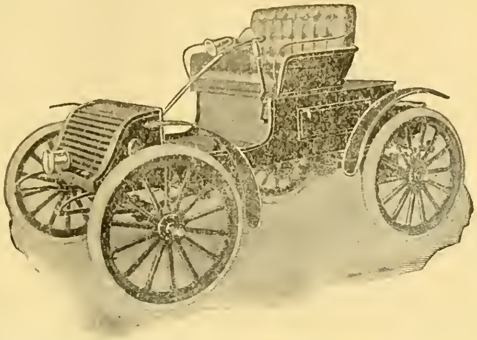


FENCE! ***STRONGEST MADE.*** Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

HIGH CARBON COILED SPRING STEEL WIRE
FENCE
INDIANA STEEL & WIRE CO.
BOX 509 MUNCIE, INDIANA.
CATALOGUE FREE.

$750 HYDRO CARBON

Capacity :
100-mile
Gasoline-
tank.



Capacity :
300-mile
Water-
tank.

Weight 940 lbs.; seven-horse power actual. Will run at any speed up to 25 miles per hour, and climb any grade up to twenty per cent. For catalog, address

Friedman Automobile Co.,
3 East Van Buren St., Dept. B, Chicago, Illinois.

Root's Improved Cowan

They Wear the Blue Jackets.

BALL-BEARING

Honey Extractor

Since the introduction of these extractors some 14 years ago to the bee-keeping world, we have been experimenting with a view to eliminating weak points, and perfecting the stronger ones.

All Sizes. We manufacture all sizes of extractors from the small 2-frame to the 4 and 6 and 8-frame machine-power (power machines made to order only). The can part of these extractors is made of galvanized iron covered with blue japanning, and neatly lettered.

Galvanized. The comb-baskets are galvanized wire, well braced; the hinges, hoops, cross arms, and other metal parts, are galvanized after finishing, something you will get in no other on the market.

Band-brake. All four, six, and eight frame machines are provided with band-brake, which permits of the stopping of the machine instantly, without danger of breakage. These machines have large metal handles. Ball bearings are used which make them very light running. The honey-gates are large, which does not require the stopping of work to allow the honey to run out.

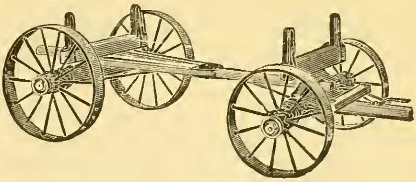
For sale by all large dealers in Bee Supplies.

MANUFACTURED BY

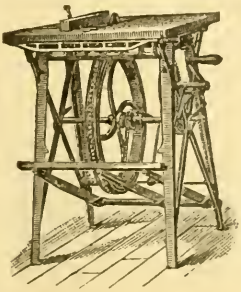
The A. I. Root Co., Medina, O.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial.

Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts
E. R. ROOT, Editor of Apicultural Dept
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TERMS. $1.00 per annum ; two years, $1.50 ; three years, $2.00; five years, $3.00, *in advance;* or two copies to one address, $1.50 ; three copies, $2.00 ; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

SPECIAL NOTICE
Special Notices
By Our Business Manager

BEESWAX DECLINED.

Until further notice we will pay 29c cash, or 31 in trade, for average wax delivered here. We have a large supply on hand, and the market is somewhat easier than it was a few weeks ago. By July 1st the price will likely go still lower.

BUSINESS BOOMING.

The demand for supplies continues in good volume considering the cold wet weather prevailing in many localities. We are catching up on carload orders, and are shipping small orders with very little delay. Our jobbers and distributing houses are supplied with goods, or have them coming, so that they can fill most orders by first train.

HONEY-CANS.

We have just received a carload of 5-gallon cans, in number about 4000. These are put up in boxes, one or two per box, as required, and furnished at the prices quoted in catalog. We have distributed a good many to our jobbers, who are prepared to furnish them promptly. We still have here at Medina a quantity of second hand cans, two in a case, at $4 50 for ten cases; $10.00 for 25 cases These are good for second-hand cans, and well worth the money.

DOOLITTLE'S HOME AND APIARY FOR SALE.

Mr. G. M. Doolittle desires to sell his home and apiary, queen-rearing and all, for $2500. Any one who desires particulars should write him direct. He has a very pretty place of about three acres, situated near some beautiful lakes in some of the prettiest country of York State. It is in this very locality where he has done his best work, and made more than a good living from his bees. If he sells he will move on to an estate of a sister lately deceased.

GERMAN WAX-PRESS COVER.

To those who have had trouble with breakage to cover-casting of the German wax-press, we can supply for $1.00 the new oak cross-bar reinforced with metal casting threaded to fit a ¾-inch screw 10 threads to inch, single lead, or 8 threads to inch, double lead, together with the lugs for attaching to the can and cover to fit each side of the bar to close the top of the can. This price is less than half what we would ordinarily charge for these parts, but is made with the view of our sharing in the cost of replacing the covers which have been broken in use. Although we tested the cast cover carefully before adopting it, we later found that too many of them broke in the hands of users to warrant continuing to furnish that style. To attach the new bar it will be necessary to drill four holes through the rim for riveting on the new lugs for clamping the bar to the can. The plunger-plate must be removed to insert the screw through the new bar, when it may be replaced. The first presses sent out had single lead screw 10 threads to the inch, while the later machines had double lead screw 8 threads to the inch. In ordering, be sure to specify for which style of screw you want the bar threaded to fit.

PAPER HONEY-BAGS.

Our supply of paper honey-bags has not yet reached us but we are expecting them now within a few days, when we shall be prepared to supply them at the prices named below.

These are made of tough paper, straw color, printed in two colors, with blank space for name and address of producer or dealer, and extra-coated with paraffine. They have been thoroughly tested, and proven to be a success for candied extracted honey. See article in our March 1st issue for illustration and full particulars. We have four sizes which we can supply at the following prices :

2-LB SIZE, 5 x 7½.		5-LB. SIZE, 7 x 10.	
100	$ 80	100	$1.20
500	3.75	500	5.50
1000	7.00	1000	10.50
5000 @	6.00	5000 @	10.00

3½-LB. SIZE, 6 x 9½.		10-LB SIZE, 10 x 10½	
100	$1.00	100	$1.50
500	4 75	500	7.00
1000	8 75	1000	13 50
5000 @	8.25	5000 @	.13.00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size :

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00 ; with ten different names, $3 00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10 00 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2.00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

Special Notices by A. I. Root.

Our seed potatoes are all sold.

WANTED—JAPANESE BUCKWHEAT FOR SEED

If you have any, please mail us a sample, and tell us how much you have and what you want for it.

SACK FOR HOLDING SEED POTATOES TO GO WITH THE HAND PLANTER.

I should have mentioned this useful invention sooner. In our recent planting we found the bag a very great convenience. One of our boys used it slung behind his back, or partly so. In this way it is easier to carry a bag of seed, as it leaves both hands untrameled; and this boy, only 15 years old, would reach behind him and get a piece of potato about as easil as if the bag were right in front. I would not be without such a bag in using the hand planter, and I do not see why it would not be a great convenience to one who drops potatoes by hand. Price, all complete, 40 cts.; by mail, 20 cts. extra.

Kind Words from our Customers.

The Vesuvius smoker I received from you is a dandy. Best I have ever used. GEO. H. MOHLER.
Holmes, Pa.

I have transferred some of my bees into my new hives. I am very much pleased with them. They are just as I wanted in every respect. If I had been at your factory I could not have been better suited. I compliment you very much in interpreting one's wants. H G. BLAYNEY.
West Alexander Pa.

T. B. TERRY TELLS US HOW MUCH IT IS WORTH TO HAVE A CHEAP FOUNTAIN PUMP ON THE PREMISES IN TIME OF FIRE.

It must be 16 or 18 years ago that I bought a little brass hand force pump of you to clean carrirges with, and to have to use in case of fire, with a pail of water. It has always been kept hanging just where it was handy to get at. When lightning struck our barn last summer, and the roof was burning right over a mow of hay, seconds were precious. With scarcely an instant's delay, Robert got the pump, and my man two pails of water from the tank in the barn, and they had a stream of water playing on the fire from a ladder beneath. It was a close call to a heavy loss; but the little tool used in time saved a thousand times its cost. It speaks well for the quality of the goods you send out. The pump seems yet as good as ever.
Hudson, O. T. B. TERRY.

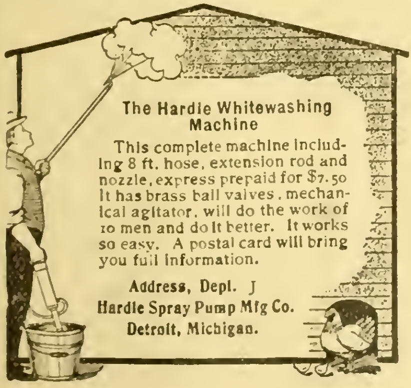
A SPECIALLY KIND WORD, AND ONE THAT MAY BE NEEDED BY SOME OF OUR "LORDS OF CREATION."

The following brief letter, as you will see by the date, was written over two years ago. In that Home Paper I described a separation of husband and wife that started about so simple a matter as a pen and ink that could not be found when the husband was in a great hurry.

Mr. Root:—I do not know that I have a right to speak in meeting, because I am not a subscriber to GLEANINGS; but I have a very good friend who is, and I always read what A. I. Root has to say; and as this gentleman (every one will admit that no greater compliment than this appellation can be paid him) tries to reign over his kingdom with true love and equity, that "pen and ink," in the last issue, is suggestive. The king is supposed to be as far-seeing as his subjects, hence he must know where that ' pen and ink " is kept. Here the habit of calling upon some one to wait upon him comes to light.

Now we will pass from this kindly king to others who are narrow and cruel. Many men in their business and social relations often cringe to others; but when these same men enter their own homes they don the regal crown, and at a wave of the scepter the weary wife climbs the stairs from cellar to garret, ransacks house and barn, to lay some trivial thing at the feet of the monarch.

Corollary: A true king will wait upon himself. He will never call upon his loved ones to be his vassals.
St. Paul, Minn., Feb. 25, 1901. READER.



The Hardie Whitewashing Machine

This complete machine including 8 ft. hose, extension rod and nozzle, express prepaid for $7.50 It has brass ball valves, mechanical agitator, will do the work of 10 men and do it better. It works so easy. A postal card will bring you full information.

Address, Dept. J
Hardie Spray Pump Mfg Co.
Detroit, Michigan.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell single-comb White Leghorn eggs for hatching at $1.00 for 26; $3.00 per 100.
J. P. WATTS, Kerrmoor. Pa.

WANTED.—An assistant apiarist; state age, experience, and salary expected Address
W. HICKOX, Berthoud, Colo.

WANTED.—An experienced bee-keeper in Georgia wants position in Cuba the coming season.
"GEORGIA," care The A. I Root Co.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange copy of *New York Herald*, April 15, 1865, in good condition, containing detailed particulars of President Lincoln's assassination. Best offer gets it. ELIAS FOX, Hillsboro, Wis.

WANTED.—Agents to sell and attach automatic cut-offs to grinding-mills, which automatically stop them when hopper becomes empty. Especially adapted to Aermotor windmills. Write for particulars.
B. STRITTMATTER, Bradley Junction, Pa.

WANTED.—Two experienced beemen who understand the production of comb honey; single and reliable men to help take our crop this coming winter; must remain till crop is over, say six months.
Address H. G. OSBURN,
Campo Florida, Cfo. La Cantira, Havana, Cuba.

WANTED.—To sell at a bargain, a quantity of new comb-honey supers—8 and 10 frame complete, except sections—for standard 4¼ sections. Also a lot of T-supers and supers with section-holders which have been used; all in fine condition, and many have sections and drawn comb in them. Hoffman worker combs wanted. F. B. CAVANAGH, Galt, Mich.

WANTED.—To sell for cash at Oakville, Appomattox Co., Va., the following property: One lot of five acres with a large storehouse and dwelling combined, consisting of 6 rooms; one nice small dwelling of 3 rooms; one blacksmith and wheelright shop with complete set of tools; one large shedded barn, covering an area of 2000 square feet; a fine young orchard of 100 improved bearing trees; 11 stands of bees; a splendid location for general store and apiary. White clover and sourwood grow abundantly, and nearest bee-keeper of note 25 miles. This property is in easy reach of 10 churches; postoffice and schools at the place; has fine well of water, and handsome shade-trees. Will also sell annex of 6 acres of wood land. Price of whole outfit, $1300. Apply to
J. P. & R. D. HUGHES, Oakville, Va.

WANTED.—To sell S. W. ¼ of S. E. ¼ sec. 26, range 26, Crystal Lake Tp., Benzie Co., Mich.; 40 acres just outside corporation of Frankfort; a nearly finished cottage of six rooms, a small stable, 25 bearing apple-trees, a few peach-trees. From front porch can be seen a delightful view of the little city of Frankfort, Lake Michigan, harbor steamers, etc. Unexcelled as a summer home or a fruit-farm. Only a few hours from Toledo, Detroit Chicago, Minneapolis, and other cities Write Gen Pass. Agent of Toledo & Ann Arbor R. R., Toledo, Ohio, for pamphlet describing Frankfort. Cheap at $2200; if bought soon can be secured at $1400. Also for sale 160 acres, 15 miles east of Frankfort; only $2.50 per acre 25 acres ready for the plow. Write C. L. Linkletter, Agent, Frankfort, Mich., or W. A. HOBBS, Owner Traer, Iowa.

PAGE & LYON,
New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .

BEE-KEEPERS'
SUPPLIES. . . .

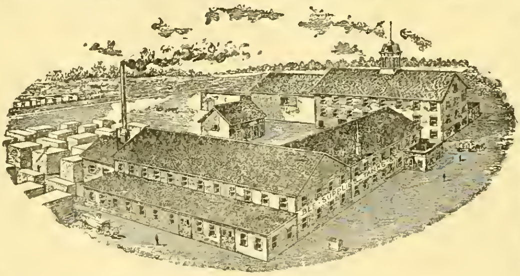
Send for Our Free New Illustrated
Catalog and Price List. . . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping=point and Money=order
Office at Wetumpka, Alabama.



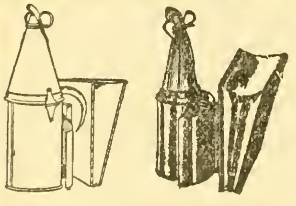
Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE-SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa,
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

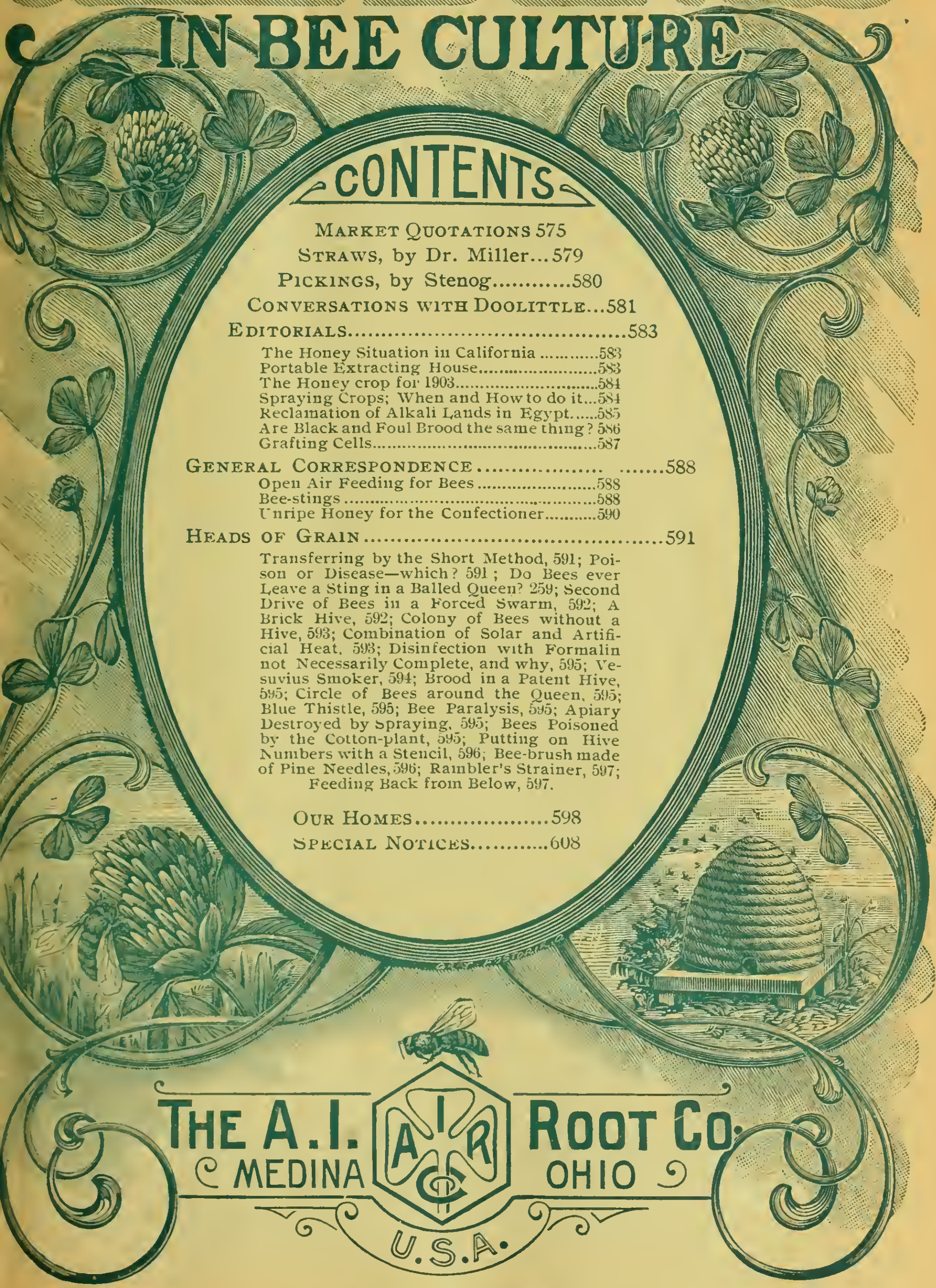
Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI JULY 1 1903 Number 13

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

Entered at the Postoffice at Medina, Ohio, as Second-class Matter.

QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains ; viz., Imported or leather color, Root's long-tongued, or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

JUNE AND JULY PRICES :

Tested, each	$1 25
Select tested, each	1 50
Warranted purely mated, each	90
Same, per half dozen	5 00
Same, per dozen	9 00
Untested, each	75
Same, per half dozen	4 25
Same, per dozen	8 00

We have also a full line of bee-keepers' supplies including **The A. I. Root Company's Goods, Root's Sections and Weed's Foundation a Specialty.** Send for our 32-page illustrated catalog.

W. W. Cary & Son,

Lyonsville, Mass.

Root's Bee - Supplies

for the South Atlantic States at Root's Prices.

Quick Shipments and Low Freight Rates.

One-horse wagons,
Corn-shellers for Poultry,
Family Grist-mills,
Corn and Cob Mills,
Feed-cutters,
Tilting and Sliding Table Saws,
Steel-runner Attachments for Vehicles.
Send for Catalog H.

Rawlings Implement Company,
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The comb-honey hive is one of our specialties. Send for booklet telling about it.

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Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firm-y attached to all four sides, the combs unsoiled by travel-tain or otherwise; all the cells sealed except an occasional ell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells ext to the wood; combs straight; one-eighth part of comb urface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next o the wood; combs comparatively even; one-eighth part of omb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight ection.

In addition to this the honey is to be classified according o color, using the terms white, amber, and dark; that is, here will be "Fancy White," "No. 1 Dark," etc.

Albany.—Light demand for honey here now, as it s between seasons. No comb honey here, old or new. ould sell some light at 15@16. Some Southern ex-racted selling at 6c; no other on market. Beeswax vanted at 22c. MacDougall & Co.

June 20. 375 Broadway, Albany, N. Y.

Kansas City.—No comb honey in our market, white or light amber would sell quick at $3.50 for 24 ections to the case. Demand light for extracted at rom 5½@6½. Beeswax in demand at from 25@30.

C. C. Clemons & Co.,

June 9. 306 Grand Ave., Kansas City, Mo.

Denver.—Demand for comb honey light. We quote o. 1 white comb honey, $3 00 per case of 24 sections; o. 2 comb honey, $2.50@$2.75. Choice white extracted lfalfa honey, 7½@8⅓ per lb. Beeswax wanted at 22@ 8c, according to color and cleanliness.

Colorado Honey-Producers' Ass'n,

June 13. 1440 Market St., Denver, Col.

Toledo.—The market on honey is rather quiet at resent, as old honey is almst gone, and no new ar-riving as yet. We have on hand about 100 lbs. of No. 1 white comb which we are closing out at 16c. No de-mand whatever for dark. Extracted in barrels white lover, 8c; light amber, 7c; dark 6½c. Beeswax, 28@30.

Griggs Brothers,

June 11. 214 Jackson Ave., Toledo, Ohio.

Cincinnati.—We have reached the time when there re no settled prices in the honey market. Everybody s waiting to learn how the new crop will turn out, herefore we will sell or ask the old price. Fancy vater-white brings 15@16. Extracted amber, in bar-rels, 5¼@5½; in cans, 6@6½; white clover, 8@8½. eeswax, 30. C. H W Weber,

June 8. 2146 8 Central Ave., Cincinnati, Ohio.

Boston.—Our market on comb honey is practically are, but owing to the hot weather the demand is xtremely light. Have not seen any new honey as et. It can be readily sold at 17@18, if to be had. here is a fair demand for light amber extracted at @7½; best Florida honey bringing 7@8, according to uality. Blake, Scott & Lee,

June 9. 31. 33 Commercial St., Boston, Mass.

Philadelphia.—Very little doing in comb honey ow. Not enough sales to fix any standard price. xtracted honey moving off in spurts but little de-mand. We quote amber, 6@6½; white, 6¾@7½. Bees-ax, 31. We are producers of honey, and do not han-le on commission. Wm. A. Selser,

June 8. 10 Vine St., Philadelphia, Pa.

Buffalo.—Very little demand for honey. Very few uyers will take any more of the old crop. The price no object to effect sales; a big cut in prices would ot cause it to move more lively. Fancy white comb, @15; A No. 1, 13@14; No. 1, 12@13; No. 2, 11@12; No. 10@11; dark, 10@12. Extracted white, 6½@7; dark, 5½. Beeswax, 28@32. W C. Townsend,

June 10. 178, 180 Perry St., Buffalo, N. Y.

Wanted.—To hear from producers of comb honey in California and Nevada. It may sound unreason-able, but we have probably bought, for spot cash, more comb honey than any firm in the United States, during the past three seasons. We can, no doubt, do you some good. Thos. C. Stanley & Son,

Manzanola, Colo., or Fairfield, Ills.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

Wanted.—All the bulk comb, extracted, and section honey that we can buy in the State of Texas. We pay spot cash for honey. Write us now or when you have honey. The Hyde Bee Co., Floresville, Tex.

Wanted.—Extracted honey; mail sample, and state lowest price delivered in Cincinnati. Will buy fancy white comb honey, any quantity, but must be put up in no-drip shipping-cases. C. H. W. Weber,

2146-8 Central Ave., Cincinnati, Ohio.

For Sale.—We are sold out on alfalfa honey, but have ten 350-lb. bbls. of light amber and buckwheat at 7c; forty 250-300 lb. bbls fancy basswood at 8c; 60-lb. new cans, two in a case, 9c. E. R. Pahl & Co.,

294, 296 Broadway, Milwaukee, Wis.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,

199 South Water St., Chicago, Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

Orel L. Hershiser,

301 Huntington Ave., Buffalo, N. Y.

Convention Notices.

The Texas Bee-keepers' Association will meet in annual convention at the Agricultural and Mechanical College at College Station, Texas, July 7 to 10, inclusive, during the time of the annual meeting of the Texas Farmers' Congress. Cheap excursion rates on the railroads. A large crowd every year, and a jolly good time, as well as the meeting of your fellowmen, and the knowledge gained during the sessions. Grand exhibits of products. A good list of premiums offered. Bring your stuff, whatever you have.

Hunter, Texas. Louis H Scholl, Sec'y.

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To promote and protect the interests of its members.
To prevent the adulteration of honey.

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This particular strain is the progeny of selections from choice stock of Root's red-clover queens, and Moore's crossed with the very best of our own rearing.

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GOLDEN ITALIANS have no superior, and few equals. Untested, 75 cts.; 6 for $4.00.
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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Stray Straws

By Dr. C. C. MILLER.

A FEW WEEKS ago I found on the ground in front of some hives a few bees in apparently bad order, and among the rest one tumbling around with its abdomen torn away. I tried to think what could have caused it, but gave up the conundrum. I suppose the true answer is given on page 531—the poor thing kicked itself to pieces. A cherry orchard probably had some spraying when still in bloom. [We should be glad to hear from others of our subscribers as to whether they have seen bees torn to pieces in the manner described.—ED.]

WHAT A. I. ROOT says, page 557, about the danger of having an automobile in the hands of a drunken man suggests the thought that if automobiles are to become cheaper than horse-flesh it may become necessary to pass laws against having any saloons. I really believe we'd be just as well off without saloons anyhow. [Yesterday a horse went by drawing a drunken driver. The poor animal seemed to know that its owner needed to be taken care of; and in spite of the pulling and hauling at the lines it kept right in the road. But an automobile would, possibly and probably, run him into a ditch and crush him beneath its weight—ED.]

"NOW, IS IT hard to suppose that a three-story hive, run for extracting, might average 70,000 bees?" p. 528. Nothing very hard about it for me, but how about a certain editor who not so very long ago was trying to convince me that such a thing was an impossibility? [Convince you that such a thing "was an impossibility"!—why, I can not recall to what you refer. I have advocated strong colonies, "double-deckers," for years, and last year at one of our out-yards I had several three stories high, and one or two four stories. If some of them did not have one hundred thousand bees it would be strange. If I was trying to convince you that a colony could not have that number, I must have been inconsistent with my practice and teachings.—ED.]

YOU'RE RIGHT, Mr. Editor, I made very bungling use of language when I said "giving all the earlier supers on top." I meant having the earlier or older supers always on top, each time putting the later supers under. My practice, like the practice of many others, has been to put the second super under the first, the third under the second, and so on, leaving the oldest super always on the top, except when it comes near the close of the harvest, when the empty super is put on top. I think I should never have thought of trying any other way if friend Hershiser had not stirred me up, but he has set me to thinking whether a compromise may not be a good thing, and if any good comes of it he should have credit therefor. This year I'm putting the empty super next to the brood-chamber, as heretofore; but instead of having the oldest super always at the top, it will be next above the lowest. I think this will not only hurry up the finishing, but it will especially help about getting the corner sections finished.

EDITOR HUTCHINSON is doing his share toward popularizing bee-keeping in the magazines. A finely illustrated article from him appears in the June issue of that aristocrat of agricultural magazines, *Country Life in America*. [Nearly two years ago the editor of *Country Life* wrote our firm asking us to name some one who would be capable of writing a general article on bees, and who would be able to furnish a set of fine photos for purpose of illustration. We could think of no one abler than our friend W. Z., and immediately put him in touch with the editor of *Country Life*. The sequel is the fine illustrated article that appears in that paper for June. Mr. Hutchinson is getting to be known pretty well outside of beedom as a writer on bees. His skill with the camera and with the pen makes him just the man to write popular articles for a popular magazine. All such articles do much to bring honey more generally into use, and the knowledge of *how* it is produced in such quantities does much to inspire confidence in the purity and wholesomeness of the comb and extracted honey that is offered for sale.—Ed.]

Mr. Editor, let us see how far we can agree about the matter of putting the empty super under or over, and having only two or more than two supers on at a time. If the second super is put below the first, and no other super added till the first is finished, the finishing of that first super will be hastened, and the sections will be sealed clear out to the wood better than if the super had been finished on top, because the bees are so loath to jump over that vacuum and begin work in the sections above that they will work away at the lower super till actually *crowded* out. That crowding will also have the effect of increasing the tendency to swarm, and it will increase the amount of wax used in brace and burr combs. Thus far, I think, we agree. You may also agree, at least partly, in my further belief, which is this: That that crowding is for a time somewhat as if only one super were present, and there being so little surface on which to work, some of the bees are occupied secreting wax and putting it where not needed; whereas, if an empty super were given under, those bees would at once be at more profitable work. Many colonies are strong enough to fill the hive and three or more supers *full* with bees. The limiting such a colony to less space than it can fill must have some effect in limiting the amount of work it can and will do. This is a very practical matter, and I hope with you that before the year is out we shall have light from practical honey-producers. If I can make more money by it, I am anxious to be convinced that the best way is never to have more than two supers on a colony, the empty super always being given on top. It would make less work, and if it also makes more money I would be foolish to continue any other plan. [Either you did not say what you mean again, or else I do not understand you. You say, "If the second super is put *below* the first" the finishing of that first super will be hastened. Don't you mean, instead of *below*, "above" in the quotation just given? If you do, then I think I could agree with you all through.—Ed.]

The importance of the matter is my apology for continuing the discussion of that vacuum you speak about, Mr. Editor, p. 528. You say, "When an *empty* super is put on top, no work has begun, and there is no vacuum to bridge over." That would be so if the work were begun at the bottom of the section, and the bees worked gradually up. But the work is not begun at the bottom. The bees cluster at the top, and the upper part of the section is first sealed. You may say the bees begin all over at once. Certainly nearly that in some cases. Let us suppose they commence all over at once. Now let us take two colonies exactly alike, each having a super well advanced, and to one we give a super on top, and to the other a super under. Tell me whether there is not exactly the same vacuum for the bees to start on in each case. Talking about nature, is it natural to force them to begin in a vacuum above. Is it not more natural to have them make a start *below* the partially filled super above? If the colony is strong and there is a good flow of honey, the bees will commence at once in the empty super beneath, and the bees will be working in the two supers for at least a little time before the other colony begins in the empty super above. We talk a good deal, and properly, about the advantage of having foundation so the bees can commence work on a larger surface. Now don't you think there must be a gain in a full flow to have the bees working in two supers instead of one? For it must be remembered that whatever of advantage is gained by having the empty super over (and I have no desire to dispute the advantages), that advantage is gained by the fact that the bees are forced for a time to work in a smaller space. [This is a very important matter, and we invite discussion from our subscribers. Yes, there is a vacuum in both cases, but the conditions surrounding one are quite different from the conditions surrounding the other. In the one case the bees are induced to finish up the work already begun; in the other case they begin another job before finishing the first with the possibility that neither will be finished as it should.—Ed.]

Pickings from Our Neighbors' Fields

By "Stenog."

During the past year much has been said in this journal relative to bee-keepers writing more for the general press and less for a class who need no further enlightenment on the subject of honey. The writer is a pioneer in this movement, having written a series of illustrated articles for the *American Grocer* in the summer of 1890, the result of which was very gratifying to him. Some two years ago Mr. W. Z. Hutchinson, of the *Review*, did the same thing in the *Cosmopolitan*, on a much more extended scale, reaching a larger audience probably than is enjoyed by all the bee-journals combined. But the masterpiece of Mr. Hutchinson appears in the June issue of *Country Life in America*, published in Harrisburg, Pa. He gives an interesting summing-up of bee culture, illustrated in the highest style of art. The photographs were, if I am not mistaken, all made by Mr. H., and show him to be a master with the camera as well as with the hive. One picture shows a frame of foundation partly filled out in the middle; and if any illustration ever showed where man's skill ceases and God's power begins, this is the one. It is enough to silence for ever all talk about "appropriate machinery" for making artificial combs. Mr. Hutchinson explains the absurdity of the comb-honey canards. If a dozen more writers I could name would do the same, they would render a greater service to bee-keeping than all the bee-journals can do.

Even at the risk of repeating what is trite to many, I copy a few lines in regard to the relative merits of blacks and Italians. It is well put, and I copy a paragraph for the benefit of our new subscribers:

> Under all circumstances, the Italian probably comes as near being the "all-purpose" bee as does any variety. The Italians are amiable in disposition, and very industrious, but they have their limitations. The Italians are not as good comb-builders as the black or German bees; they dislike to store their honey far from the brood-nest, and are inclined to fill the cells so full of honey as to give the sealed combs a darker appearance than that capped by the blacks, the latter leaving a little air-space between the capping and the honey, thus giving the combs a snowy-white appearance. The blacks are good workers when the harvest is abundant and near at hand, but lack the staying qualities of the Italians when nectar must be searched for far and wide. For the production of extracted honey (that thrown from the combs by centrifugal force, the combs being returned to be refilled) the Italians are the ideal bees. unless it may be in the warmer countries, as in Cuba, where the honey-flow comes in winter, and as the Italians are apt to slack up in breeding as the season advances, the approach of winter finds the colonies too weak in numbers to take advantage of the harvest.

One very fine view shows the home apiary and residence of A. I. Root and the home of A. L. Boyden.

In addition to Mr. Hutchinson's skill in the line of artist and writer, his personal bearing and friendly address go far in rendering his writings interesting to those who enjoy his acquaintance.

* * *

BEE-KEEPERS' REVIEW.

The *Review* has the largest proportion of editorial matter, I believe, of any bee-journal. In speaking of bees as a nuisance, all members of the National Association should read the following:

> Some bee-keepers imagine that, because the National Association has always been triumphant when there has been an effort to drive some member, or his bees, outside the corporation, they can keep bees in almost any way in almost any situation. I am glad to see that Manager France does not propose to defend every member whose bees are declared a nuisance, regardless of whether they are a nuisance or not. All bee-keepers well know that a large apiary might be so managed as to become a terrible nuisance to near neighbors in a city or village. I investigated a case last year in which the bee-keeper was decidedly to blame. He even went so far as to stir up his hybrids purposely, on hot afternoons, that he might hoot and jeer at his neighbors when they had to "cut for the house." Then he boasted that he belonged to the National Association, a thousand strong, which would stand by him. It stood by him by advising him to move his bees out of the village. Of course, this is an extreme case; but we all know that, even with the best of management, bees will sometimes prove an annoyance, if not a nuisance.

A fine view of a windmill arranged for pumping water, shelling corn, grinding feed, and running a saw to make hives, etc., is given. Concerning these mills, the editor says:

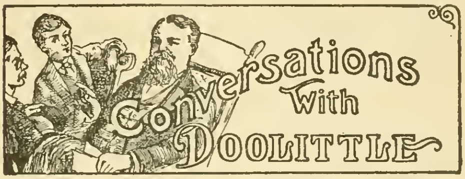
> For a farmer bee-keeper who has wood to saw, water to pump, and feed to grind for stock, and bee-hives to make, I can think of no more desirable power than that of a good windmill.

The rapid advent of gasoline as a motor power will, I think, cause Mr. H. to write differently in a few years.

* * *

Here is an item about Dr. Gandy:

> Dr. J. L. Gandy, Humboldt, Nebraska, has sold a carload of bees to go to the famous Watson ranch of Kearney, Nebraska. Roy Wilson will have the management of the bees. The Humboldt paper says that twelve men worked all night preparing the bees for shipment, and some of them "bore marks of their labor" the next day.



REPLACING QUEENS.

"Say, Mr. Doolittle, how long do queens live?"

"What led you to ask me that question, Mr. Brown?"

"We are told in the bee-papers that, to reap the best results in honey, queens over two years old should not be allowed as mothers of colonies. I suppose from this that the writers think that from two to three years is the average life of the queen. What is your experience in this matter?"

"My best queens live to be four, five, and, in some instances, six years old; but the average life of queens is about three and a half years. The length of a queen's life, other things being equal, depends upon the tax that is put upon her egg-laying powers, and under our modern management queens do not average so long-lived as they did in box-hive days."

"Would you think it best to change all queens that were three years old? I have some such that were just as good layers as ever last fall, and came through in my strongest colonies, and I was wondering whether I ought to change them this summer. What do you think?"

"I do not think that the question of age should be considered in the matter of changing queens, except so far as it may be taken as a sort of rule to judge of when they will be apt to fail. I would not replace a queen so long as she lays up to her full average, especially at this time of the year, for during the month of June any queen that has even less than the average value can supply eggs which will be turned out into bees at the right time for the honey harvest; while if a general change is made, many colonies are likely to lose thousands of eggs at best, and, not only this, the young queen is often very liable to bring a lot of workers on the stage of action in time to become consumers rather than producers."

"Would it have been better to change in early spring?"

"No. A change at that time would have been worse yet, as it would have resulted in a loss of bees at just the time when each bee is of the greatest value to push forward the rearing of others for the honey harvest."

"When would you change queens then?"

"If queens must be changed I would advise waiting till the harvest of white honey is over, for the loss of eggs usually sustained through a change of queens will then be little or no loss, as they are generally hatched into larvæ at a time when said larvæ have to be fed out of honey stored in the hive, while the mature bees generally consume more of the stores already laid aside than they add to them."

"What is your opinion in this matter?"

"With one exception, I pay very little attention to the matter of changing queens, where the colonies are worked for honey instead of queen-rearing, for I find that nineteen colonies out of twenty will supersede their own queens as soon as they need changing; therefore, with the one exception it is a waste of time for me to be worrying about this matter, keeping track of the ages of all queens, etc., when the bees will look after the matter at the proper time."

"Then you think I better not undertake these things?"

"That would be my idea. The bees will attend to the changing, and make fewer mistakes than you are likely to make, no matter how careful and wise you may be. If you think I am wrong in this matter, set apart a certain number of colonies to try each way, and a term of years will tell you which will pay you better."

"You spoke of an exception in this matter. What did you mean by that?"

"I find that more queens are superseded during the month of August than at any other time of the year; and so by a little forethought, and a *little* work, I fix it so that the bees will attend to this matter, if the queen is failing, and at the same time accept queens from my very best stock to do it with, instead of supplanting their queen with inferior stock, as they would do if left to themselves, providing their mother was not of the best breed obtainable."

"How can you accomplish such a thing as that?"

"It is very simple. Just before the close of the white-honey harvest, at a time when the bees will rear as good queens as at any time during the season, I start queen-cells in proportion to the number I consider I wish, starting them from brood from the queen which has given me the best results during the past; and if I have chosen the right time these cells will be 'ripe' at just the time the bees will be most likely to start cells for supersedure."

"How do you know the colonies which are starting supersedure cells?"

"I do not know this, nor do I think it worth the trouble to find out. I judge from outside appearances, and the amount of white honey stored, which colonies may be liable to supersede their queens, and those I would desire to have do so; and when I have decided this matter, I give one of these ripe cells to each of such colonies."

"How do you give these ripe cells?"

"Always by putting them in queen-cell protectors. You know what they are?"

"Yes, but that was not what I meant. Tell me how you put them in the hive."

"That part is very simple. Having the ripe cells all in cell-protectors, I go to the hives designed for them; and if the bees are still in the sections, I put one of these protected cells in any section where I think the bees will be likely to care for it till the queen emerges. If no sections are on, or the bees have left the sections, then I lift the cover, spread the frames a little, sufficient to allow the cell-protector to go just below the top-bar of the frames, when the frames are brought back in place again, which crowds the protector into the comb so that it is held in place as in a vise."

"Any certain place between the frames where you put them?"

"I have had the best results where the cells were placed the furthest away from the brood, consistent with the bees' caring for them, which is generally near the back upper corners where the most sealed honey is allowed."

"What about the protector? Do you take that out as soon as the young queen has come out?"

"No. The simplicity of this matter is the little work required in accord with the results obtained. I pay no attention further than what I have told you, not opening the brood-chamber to the hive again till the next season arrives, when the cage is found and taken out, usually when clipping the queen's wings during fruit-bloom."

"Oh! I begin to see. You can tell the number you succeed with by the cage between the combs, and the queens not having their wings clipped?"

"Exactly."

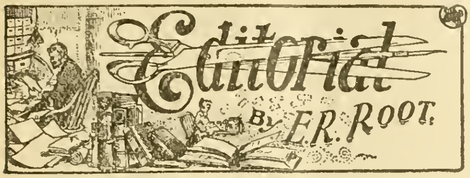
"About what proportion do you find with unclipped wings?"

"That depends somewhat on years. Some years the bees do not allow their queens to rear as much brood as others, and in cases of the maximum amount of brood not being reared, not so many are accepted. But generally I find that from one-half to two-thirds of these cells are accepted and a young queen from my best mother is reigning the next spring in place of the old one of the summer before."

"And in this way your stock is growing better with each year?"

"Exactly. And herein a gain is made

also. Try it next August, and see if you are not pleased with the idea."



ELSEWHERE in this issue we have called for reports of the honey crop throughout the United States. Be sure to condense these reports on to postal cards, not exceeding a half-dozen lines.

MR. WILMON NEWELL, who a few months ago accepted a position as Assistant State Entomologist in charge of the Experimental apiary at the A. & M. College, College Station, Texes, has now resigned to accept a similar position as Assistant State Entomologist of Georgia. In the meantime Mr. Louis Scholl, Hunter, Texas, Secretary of the State Bee-keepers' Association, has been appointed to fill the position vacated by Mr. Newell. Both have been promoted, and are both good men for their places.

THE HONEY SITUATION IN CALIFORNIA.

THE following letter, recently received from the California National Honey-producers' Association, will explain itself.

> *Mr. Editor:*—California bee-men owe you a great deal for many different subjects wisely summed up in this valuable journal; but, in my mind, the most important is the continued and persistent effort to keep down the tendency to boom the crop prospects to such an extent as to surprise and alarm the conservative bee-man. It is a positive fact that no one can be sure of a big crop in Southern California until it is produced. All that a person can justly say (when the conditions are most favorable) is that the prospects are good for a crop of honey up to the time of the report. It makes many of us tired who have had the most experience, to read a positive assertion that "a certain season will be a record-breaker," or that California will "produce so much honey that we shall not know what to do with it." I wish to add my emphatic protest to that of GLEANINGS against these reports, as they create a hardship, not only for the bee-men but also the dealer, for they are, in nineteen out of twenty cases, wide of the mark and utterly misleading.
>
> The reports sent to the California National Honey-producers' Association show that reliable men from different sections estimate that Southern California can not, under the most favorable conditions, secure more than from one-third to one-half of a crop this season. In three of our own apiaries the queens stopped laying for three weeks, and all the others are affected in a lesser degree by the continued cold dark weather. Unless it should come off warm within the next two or three weeks, we shall have practically a crop failure in Southern California except in a few small localities which have been favored with more sunshine than the rest, and report as high as 30 lbs. to the colony now in the tanks.
>
> Again, I wish to say, do not report your crop prospects on the highest possible output under the most favorable conditions, for we seldom get all these conditions that are required to make a large yield.
>
> GEO. L. EMERSON,
> *Sec. C. N. H. P. Ass'n.*
>
> Los Angeles, Cal., June 11, 1903.

It has been our policy to report as nearly as possible the *exact condition* of the season in different localities. To try to "bull the market" in the interest of bee-keepers, when there was a big crop of honey, might be almost as disastrous as to "bear" it at the wrong time. What producers need is an absolutely truthful statement, so that prices may be regulated accordingly. If the statement goes out that there is a scarcity of honey, many producers would hold their crops with a view of getting higher prices. While they are holding, others would be unloading their crop, with the result that the market would be going down, down, down, and the fellows who are holding would, in the end, have to sell lower than their neighbors who have taken advantage of an early sale, when the prices were comparatively good. If, on the other hand, inflation reports go out when the crop is light, prices will rule low at the very beginning, with the result that a good bulk of the honey will be sold at a low price when it might just as well have obtained a higher figure.

PORTABLE EXTRACTING HONEY-HOUSE.

WHEN I visited Mr. Chalon Fowls, in Oberlin, in company with Mr. W. Z. Hutchinson, a few weeks ago, he showed us a very neat extracting-house in the barn, that he had just completed, of such size and shape that it could be moved from one yard to another. The total cost of the structure, not including any labor, was only $15.00. As he is a specialist bee-keeper, he has spare hours which he can devote to general work that comes in effective during the general rush of the season when he has no leisure. Accordingly, in the spring he constructed indoors a small extracting-house 6×10×7 feet high, inside measurement. From the floor to the top of the peak, the distance is 8 feet. The roof-boards are sides of drygoods-boxes which are then covered with tar felting. A door and two windows (the latter sliding so as to provide for the escape of the bees) complete the structure.

Mr. Fowls now concludes that it would have been better if he had made it two feet longer and one foot lower. This would have required no more material, made the building no more expensive, but at the same time more convenient as well as roomy. The space overhead does not count for much, but floor space is every thing.

After the building was constructed, the next thing was to move it. Mr. Fowls made a wooden axletree to fit the rear wheels of his regular wagon, of a sufficient length so that the wheels would clear the building. This was connected to a reach which would be long enough to allow the building to clear the running gear and the front wheels on the regular axletree.

After the building was mounted in the manner described, it was run up in front of the photographer's office, and a picture taken of it. The result is shown in the illustration on page 591. Incidentally I might remark that the picture shows a part of the campus and some of the buildings of Oberlin College. These bring back to me pleasant memories of when I was a student at Oberlin some twenty-two or twenty-three years ago, where I spent four years of time, and where I put in some of the hardest work I ever did in my life.

But to return: I asked Mr. Fowls the question whether he could not have constructed the building at one of the outyards, where it was to be located, more cheaply than he could build it in the barn and then move it out afterward.

"Possibly," said he. "But the building could not have been put up when I had the spare time, in the barn. Rain or shine, I could go on with my work, a little to-day and a little to-morrow, and so on until I had completed it; and the only cost of moving was the hard-wood axletree for the rear wheels."

His regular bee-horse, the one that was nearly stung to death, was put at the work of drawing the building to its permanent location. Permanent, I say — permanent until some other yard might be deemed better for bees; and herein is a possible advantage in having the building portable. One can never tell how long he will use some particular location. Farmers may change their crops from alsike or red clover to timothy. Basswoods may be cut off to such an extent as to render the location, once good, very poor. Moving the yard say a mile or two might make the difference between a good profit and a loss. By constructing the extracting-house so that it is portable at all times, one is in position to "pull up stakes and go to pastures new" and better.

This building is large enough to store quite a crop of comb honey. Mr. Fowls mentioned to me the number of thousand pounds; but any one can figure out just how much it would accommodate and still leave sufficient room for the extractor, the uncapping can or box, and other necessary tools for the work.

THE HONEY CROP FOR 1903.

THE season has been very peculiar throughout the United States. At the beginning of the season the conditions were exceptionally favorable. In California the bee-keepers were rejoicing in the fact that they had a sufficient number of inches of rain to insure a crop; but cooler, chilly weather came on, and the result is in doubt, although it is probable that there will be a light crop. In Colorado so far as we know there will be the usual crop of alfalfa. In the central portions of the country there have been continued drouths. This was finally broken by downpours of rain, and chilly weather continuing clear up to the present, with the result that we have been getting too much of a good thing. While there are thousands of acres of clover-fields in bloom the bees have not been able to get out to any very great extent. If the weather should turn warm from now on, a fair crop of clover for some sections could be secured. In portions of New York State and especially in New England the drouth has been very severe. Rain has begun to come, but the probabilities are it has come too late. Taking it all in all, the general conditions seem to indicate only light crops of honey throughout the United States. The next ten days will tell the story. There is yet a chance for a good basswood flow and some clover honey.

A. I. R. reports for Northern Michigan that there has been no rain for three weeks. Here we have had rain every day, and that is a fair sample of the variable conditions of weather over the United States. In one place it is severe drouth; in another, too much rain and cold, and in some sections awful floods. It is a queer season taking all in all.

The condition for Ontario, Canada, is thus stated by a correspondent:

> *Mr. E. R. Root:*—After reading the report of Mr. J. D. Bixby, of Guilderland Center, N. Y., in which he states that they have been forty-five days without rain, I thought that I would just report to you the conditions in this locality, which I fancy are worse even than in Mr. Bixby's. From the 2d of April until the 7th of June (65 days) we did not have ten minutes of rain — bees barely living; no swarms yet, and very poor prospects of any; hives very light in general. All kinds of crops are stunted so that they will not amount to anything much this year. What little clover there is, is just beginning to bloom. We had a nice rain on June 7. We have had a number of fires also, and some very disastrous, on account of the drouth; but please remember, Mr. Root, that such a drouth as this is a very unusual occurrence here in Ontario. A. G. LEE.
>
> Addison, Ontario, Can.

Our subscribers all over the United States are requested to send in postal cards telling something of the season and the prospects. Make inquiries and then report on a postal. Don't write long letters, but condense your statement into a half-dozen lines if possible.

Just before going to press.—Weather conditions are very much improved. Wisconsin reports a good honey-flow.

"SPRAYING CROPS;" WHEN AND HOW TO DO IT.

A NEWLY revised edition of the book, "Spraying Crops," of 136 pages, by Clarence M. Weed, Professor of Zoology and Entomology of the New Hampshire College, has just been issued from the press of the Orange Judd Co. It is clear up to date, covering the whole subject from beginning to end, and profusely illustrated. The first chapter relates to general principles; to spraying; enemies to be destroyed by the poisonous mixtures; to their habits; the parasitic fungi which have to be destroyed by contact poisons. The book also includes the spraying of shade-trees, ornamental plants, flowers, vegetables, field crops, and even domestic animals. Particular emphasis seems to be given to just how to prepare the mixtures for the different kinds of work enumerated. But that part which is particularly interesting to the bee-keeper is that which relates to *when* to spray. In relation to this on page 49 the author says:

> It is commonly believed that spraying trees in blossom, in case the arsenites are used, endangers the lives of the bees visiting the blossoms. In some regions laws to prevent this have been enacted. Spraying at such times seems unnecessary, and intelligent fruit-growers should not practice it. The bees are essential to the production of fruit, and there is no excuse for destroying them.

And again on page 52 he writes further:

> *June*—The first part of June usually marks the fall of the flowers of most fruit-trees. Never spray while trees and vines are in full bloom. Make the second application as soon as the petals have fallen. This will be late in May or early in June, for apples; a week or ten days later for other fruit-trees and grapes. Make the June treatment thorough. A good general rule to follow after the second spraying is to let each additional treatment be made from ten days to three weeks after the preceding one; the shorter interval if there are heavy washing rains; the longer if the weather is comparatively dry.

From the standpoint of a fruit-grower, if not of the bee-keeper, it would appear that, for the codling-moth at least, the one that affects apple-blossoms, there is no advantage in spraying during blooming-time; because on page 2, in speaking of this moth, the author says: "The parent of this little pest is a small chocolate-colored moth, which appears in the spring *soon after the blossoms have fallen*, and deposits its eggs in various places upon the young apples as well as upon the adjacent leaves." The italics in the above are mine. It appears there would be no use in spraying before that time.

He credits our own Prof. A. J. Cook with priority of discovery of spraying apple-trees to prevent injuries caused by the codling-moth — experiments which, he says, have proved to the horticultural public that the remedy was safe and sure; and it was, he adds, through Prof. Cook's enthusiastic advocacy that the American fruit-growers to-day are now able to put out more and better fruit.

BEE-STINGS THAT WE DO NOT LIKE.

If there is any place over my whole body that I do not like to get a sting outside my face it is up my sleeve on my wrist. Ordinarily I never take any precaution about putting on cuffs or extra sleeves that are bee-tight; that is, fitting closely around the wrist. But last week when I went down to the yards (it was just after a rain) the bees were particularly cross. Two or three got up my sleeve and stung me on the wrist. I paid very little attention to the matter, although I suffered considerable pain. Examination showed that one of the stings was right in one of the blood-veins, and another near one of the nerve-centers. The next day the arm seemed to be lame, and what was strange, there were sympathetic pains in the other arm in exactly the same place as in the other. Hereafter I shall wear tight-fitting sleeves, or, better still, long sleeve gloves with the fingers cut off at the ends; and this reminds me that they are used by a very large number of practical bee-keepers. It behooves us all to be careful not to get any more stings than is absolutely necessary, for the effect of the accumulated poison may be serious in its effects in after years, as it was in the case of Laugstroth and some others.

And, by the way, should these sleeves be treated with any preparation like linseed oil, paint, or any other substance to render them more sting-proof? We have been sending out for a couple of years special bee gloves that were soaked in linseed oil, but it has always seemed to me that the oil would make the sleeves warm, causing undue perspiration to the parts protected. My own notion is that a sleeve made of heavy ducking, not treated at all, would be better than having something that would make the fabric stiff and unwieldy. We should like to get the opinion of our subscribers, as we are thinking of getting up a special bee glove, or sleeve, with the fingers cut off, for a very large class of bee-keepers who are looking for something of just this kind.

RECLAMATION OF ALKALI LANDS IN EGYPT AND IN AMERICA; MORE GOOD BEE-TERRITORY FOR BEE-KEEPERS.

The United States Department of Agriculture, Bureau of Soils, has issued a bulletin by Thomas H. Means on the subject of reclamation of alkali lands in Egypt. The author has investigated the methods that have proved to be successful in Northern Africa, with the view of recommending those same methods, where effective, for the waste lands of our western country.

There are a number of illustrations showing lands that were formerly deserts, supporting nothing but alkali weeds, that are now growing clover, rice, and cotton in luxuriance. How this was reclaimed and made to bloom as a garden of Eden is explained in this bulletin. Various illustrations through it show fields of cotton, rice, samar (this last a kind of plant that is used for making mats and rugs).

There are several plans for reclaiming the land. One, the oldest, is known as the basin plan. The soil is flooded over a considerable area to the depth of several inches. The water is then allowed to run off, carrying with it a strong solution of the alkali in the soil. In some cases the alkali is carried down into the subsoil, leaving the upper portion suitable for growing of shallow-rooted plants like rice. But the plan generally in vogue is a modification or an improvement of the one just mentioned. The land is thoroughly leveled so as to hold a broad expanse or sheet of water. Open ditches, of a depth of 30 inches or more, are dug at intervals of 150 to 450 feet apart. The leveled-off land is "banked up and flooded to the depth of about four inches until sufficiently leached of alkali to permit plant growth." This method, while effective, is objectionable on account of the ditches. In some cases the sides of the ditch erode, and in any case the ditches themselves occupy considerable area, rendering that portion of the land useless for crop production. This objection is very nicely overcome by the use of tile-drains in place of the open ditches. The four inches of water gradually percolates down into the tile, carrying with it large quantities of the alkali, which is then carried away.

This plan is being used in some of our western States and Territories with very satisfactory results, and the author expresses the hope that much of the alkali land of our great West can be permanently reclaimed for the growing of some of our important crops, as, for example, alfalfa.

The reader will now understand why the reclamation of these waste lands may be of supreme interest to the bee-keeper. It is well known that the available good bee-territory in the United States is becoming limited; and it is only by utilizing the deserts, turning them into productive country, that more territory can be made available. If the experiments now being conducted in various portions of the United States shall continue to prove successful, there will be millions of acres opened up for homes for ranchers, and last, but not least, bee-keepers.

We shall be glad to have any of our subscribers who are near some of these places where experiments of this kind are being carried on post us as to the result of them, for I can not imagine any thing more important than this one question of new territory unoccupied, and which can be made available for our friends the bees.

ARE BLACK AND FOUL BROOD ONE AND THE SAME THING? A REPORT FROM THE DEPARTMENT OF AGRICULTURE OF THE STATE OF NEW YORK.

A REPORT has been issued from the Department of Agriculture of the State of New York upon the investigation of infectious bee-diseases, by Veranus A. Moore and G. Franklin White, of the New York State Veterinary College, Cornell University. Specimens of black, pickled, and foul brood have been submitted to each of the above named, and pure cultures made. On page 7 of this report a somewhat surprising statement is made, that foul and black brood are one and the same, and I copy that portion of it.

> It was thought at first that the bacillus so constantly associated with the "black brood" was the organism described by Howard as *Bacillus millii* which he pronounced to be the cause of the "New York bee-disease" or "black brood." A more extended study of this organism, however, showed that it did not correspond to the description given by Howard, but, to our surprise, it did not resemble *Bacillus alvei* of Cheshire and Cheyne. A very careful study of this organism from the different specimens of "black brood" confirmed the identity of the species from the different sources. While there seem to be slight variations of this organism from the description of *Bacillus alvei* recently published by Harrison there are no differences that can not be attributed to differences in the nature of the media, temperature of cultivation, and, possibly in addition to these, influences of environment before the cultures were originally made.

And on page 9 we find the following:

> The most striking differences between the various specimens of brood sent to us as "black brood" and the description of "foul brood" is, that most, but not all, of the dead larvæ in our specimens were not viscid. The specimens we received labeled as "foul brood" differed very little in their general character from those of "black brood." The "pickle brood" specimens varied. Some of them were apparently identical with the "foul brood," while others presented a variety of changes in the larvæ. The micrococci found in the first specimens of "pickle brood" were thought for a time to be the cause, but thus far we have not obtained satisfactory evidence to that effect.

You will remember that, some time ago, Dr. W. R. Howard, of Fort Worth, Texas, at the suggestion of this journal, made some quite exhaustive researches into the general character of the New York bee-disease, or black brood. Specimens of the affected combs from the inspectors of New York were sent to Dr. Howard, who, after some extended study with his microscope, during which something like 1000 slides of the diseased matter were examined, reported through these columns that he had found the microbe that was the cause of this new disease that was responsible for the loss of so many colonies in Central and Eastern New York. He designated the microbe as *Bacillus millii.* He is a skillful bacteriologist, and fully realized the importance of separating and isolating the said microbe, making pure cultures of it. Whether his conclusions were properly drawn is not for me to say; but this is true, that the black brood that *I* have seen differs in several important respects from the ordinary foul brood, and the inspectors of New York State have been unanimous, if I am correct, in the verdict that black brood has altogether different characteristics from the other disease more commonly known. The dead matter of the former has a gelatinous character, and only slightly ropy or stringy, while that of the latter is decidedly ropy and gluey, with a distinct odor like that of any ordinary glue-pot. If there is any appreciable smell present at all in black brood (and usually there is none) it is sour. Black brood seems to spread a little more easily; that is, it is a little more contagious. While it is true the same treatment, the "McEvoy," cures both diseases, the black, when it does get started, seems to be more destructive, and more difficult to bring under direct control.

It should be said, however, that there are some bee-keepers in New York who claim there is no difference between black and foul brood; that they are one and the same disease; and even Inspector McEvoy, of Canada, whose opinion certainly should carry some weight, has expressed the same opinion.

This is a matter that will bear further investigation. It is possible that foul brood under different environments will show different symptoms, but I should hardly suspect it. I have seen samples of what was reported to be black brood that had a sour odor, that was scarcely ropy, and yet was devastating the whole yard of bees in spite of all the owner could do.

GRAFTING CELLS.

WHILE our artist was in Medina last summer he made a sketch of the different methods of grafting. In the first place, a lot of wax cell cups are stuck on to a cross-bar running through the brood-frame. The comb, of course, is cut away. There may be anywhere from one to two dozen cells in a frame; usually twelve is about as many as the bees will handle in one hive to advantage.

The cells are stuck on to the bar by first dipping the bottom of the cell cup into melted wax, and quickly setting it down on the wooden cross-bar while the frame is turned upside down as shown in illustration 3. The wax is kept hot on an oil-stove.

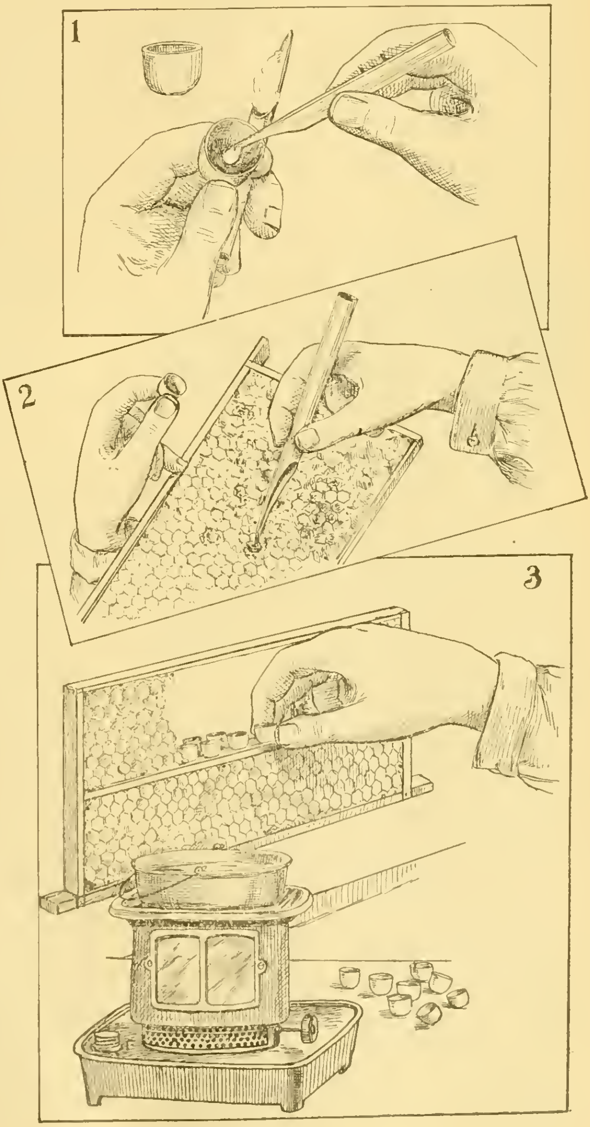
After having prepared a number of frames, the next operation is to find a queen-cell having a larva in it some three or four days old, or at an age when there will be a large amount of royal food packed away in its bottom. The larva is removed, and the food is stirred up.

We next go to a hive and select a frame from our queen-breeding colony, which has a large number of eggs just hatched. This is taken before a strong light, and we are now all ready for the grafting. With the end of a toothpick a small amount of royal jelly is dropped into a cup. Another drop is put in the next cup, and so on till the whole dozen cells are supplied with the royal food. The amount of jelly may vary from the size of a No. 6 shot to a BB shot; in fact, one can put in as much as he pleases. Doolittle recommends the size of a BB shot; but we have obtained very good results by using a less amount. We now hold the comb up to the light, showing the young larvæ, and pick out one individual. This is done by inserting the sharp end of a pick under the larva, and lifting it out. It is then gently deposited in the royal jelly in one of the cups. A little twirl of the toothpick will dislodge it, leaving it in the jelly. Another larva is picked up in the same way, and set down in one of the cups, and so on till all are grafted.

Where one is grafting a large number of cells, the first procedure should be to supply all the cell cups with a small quantity of royal food. When every thing is in readiness, take the comb out containing the selected larvæ, putting one into each cup. As soon as a frame of cells is grafted it should be set down into a queenless colony, or any colony, in fact, that is selected for starting cells.

Some queen-breeders prefer queenless stocks for cell-starting. Others will use the upper story of a strong colony if honey is coming in. Our Mr. Phillips has secured very good results by using a colony containing a queen; but the cell-cups themselves are surrounded by a perforated zinc cage. Strange as it may seem, the bees will sometimes start the cell cups even while the queen is present; but as a general rule we have found it necessary to cage the queen for a day or two to give the bees a sense of queenlessness. They will then start the cell cups; and after they are once well going they can be put in the upper story of any strong colony, and completed.

But we are now using with considerable



satisfaction wooden cell cups—little blocks of wood with a ¼-inch hole bored down into them, say ⅜ inch deep. These are then filled with a piece of soft wax. A cell-forming stick of the proper size, having a rounded end, is then punched down into this little ball of wax in the hole in the block. A little twisting and working will form a very nice cell cup.

These wooden cups are then to be grafted and secured to any cell-bar. A nail is run through the wooden block lengthwise so the point just sticks through, say $\frac{1}{16}$ or ⅛ of an inch. When the cup is grafted, this sharp point is shoved up into the cell-bar, where it sticks.

The beauty of these *wooden* cups is that they can be handled like so many clothes-pins. The wooden end can be jammed into a comb, or it can be used to block up a wire-cloth cylindrical cage or a cage made of perforated zinc, depending on whether we want the bees to have access to the queen or not after she hatches from the cell.

A little later on we will give further illustrations showing our present *modus operandi*, which differs somewhat in general details from those herewith presented.

GENERAL
CORRESPONDENCE.

OPEN-AIR FEEDING FOR BEES.

BY A. I. ROOT.

A few days ago, while in the Traverse region, a neighbor bee-keeper, Mr. James Smith, of Turtle Lake, paid me a visit. He has kept bees for only two or three years; in fact, he is almost a beginner. A neighbor of his, an old bee-keeper, told him this spring that he could stimulate his bees to raising brood and building up much faster by open-air feeding. He had a lot of partly filled combs, and by the advice of this veteran he hung them out in the open air to let the bees uncap the honey and carry it to their hives. Of course, this soon made a row. But his instructor told him he could not stop after he had once commenced; that if the bees got to robbing each other he must put out still more honey to keep them busy. After he had pushed ahead on this line until he had lost 18 colonies out of about 75, he began to be suspicious that the instructions he had been following were rather bad. He had been reading GLEANINGS, and had seen what was said there about open-air feeding. I asked him if he had seen Ernest's recent caution. He said he had. Now, ye veterans and others, I wish to make a little protest. There may be times and circumstances when an old hand can hang out combs in the open air, especially if he stays right there to watch things and look out; but I do think it is very unwise, not to use a stronger term, to advise or even suggest that beginners, or perhaps we might say the average bee-keeper, should be told to put honey out of doors for the bees to take care of, without making trouble. When GLEANINGS was started I said on its pages, and also in the A B C book, that the bee-keeper should be exceedingly careful about leaving honey exposed or doing any thing that would incite robbing, or get his bees in a notion to get honey from any other source than the flowers. When the bees in an apiary get a mania for robbing it is a hard matter to get them over it. If they learn it in the fall I have good reason to believe they will commence the same thing in the spring; and when they once get a going, it is not alone the weak and queenless colonies, but those that are in very fair order, and doing well, that will sometimes be wiped out in just a few hours. Another thing, this young friend had stores sealed up in the combs, ready to put in any hive that needed feeding; and there is certainly no better or safer way to feed in the world than to give a colony combs of sealed stores. From experiments I have made, I believe that nearly if not quite half of the honey will be lost where the bees uncap it in the open air and carry it to their hives and seal it up again.

BEE-STINGS.

Their Rational Treatment.

BY D. A. M'LEAN.

The old and well-worn adage of a small amount of prevention being worth a much larger amount of cure would be peculiarly applicable in considering the above subject if it were not that, unfortunately, our "prevention" does not always prevent, and we are obliged to resort to the "cure" after all. The best management of bee-stings is, no doubt, to so manage as not to receive them; but, as all bee-keepers know, this is not practicable, and all who handle bees expect to receive more or less stings.

While to many, and probably the greater number, this is a matter of indifference, to a good many, and especially the younger members of the fraternity, it is quite a serious matter, and one of the principal obstacles or objections to an otherwise extremely pleasant occupation. It is, then, perhaps, worth while to see if we can not discover some more certain relief for the pain of the stings, and some more successful method of treating them, than has so far been recommended. All remedies for relief from the pain of bee-stings, so far as I know, consist in the application of some supposed antidote to the poison, or of agents having some other supposed action, immediately over the wound made by the sting. Now, I wish to indorse emphatically what is said on this subject in the A B C of Bee Culture under the head of "Stings." To suppose that, by applying a remedy to the surface, you can neutralize the poison that has been injected entirely underneath the skin into the sub-cutaneous tissues, and do it almost instantly, as it must be done to prevent the effects — irritation of the nerves, causing pain, and, later on, swelling, does not seem to me very reasonable, and I am convinced it rarely if ever succeeds.

Let us consider for a moment the "anatomy and physiology," if I may so call it, of a bee-sting. The poison is injected under the skin, among the fine network of nerves, blood-vessels, and lymphatics, which lie in that position. Now, the pain due to a sting may be divided into three separate kinds or portions. First, the sharp lance-like stab as the sting penetrates the flesh. Then after a brief interval begins the pain due to the action of the poison on the contiguous nerves. The duration of this, the severest pain, is variable from a few seconds to half an hour, or even more. Then after a still longer period, swelling, with its attendant uncomfortable feelings, supervenes. This third stage is frequently absent, especially with those who have been frequently stung.

The first of this series we do not expect to be able to avoid unless we escape the sting altogether; and it is to the second and third that we direct our remedies.

Now, what, if any thing, can we do to prevent or alleviate the effects of the poison? Let us examine a little more carefully what takes place. The material injected beneath the skin consists largely of an acid substance that is a violent irritant to nervous filaments. As soon as it is placed in contact with those filaments pain is felt, and the blood-vessels and lymphatics begin to absorb it, spread it into the surrounding tissue, and carry it away. If the entire contents of the poison sac were to be thrown into a vein of considerable size, and carried directly to the heart, I can very well understand how a single sting, by causing a clot of blood to form in the vein, might produce a very serious and possibly fatal result.

But the pain produced by the poison in contact with the nerves is of only brief duration *if left entirely alone.* Why? Probably because the acid of the poison has become neutralized by the fluids and substances it has come in contact with. Now if, as soon as a dose of the poison is received under the skin, the small area involved could be cut off from the surrounding tissue and all spread of the poison prevented until it had lost its virulence, no other effects would follow. Now, this is exactly what I propose to do as far as can be done with the means at hand, by my method of treating bee-stings, and that I have followed for a number of years with very gratifying results.

When I receive a *severe* sting (and there are grades of severity as you all know), with my finger-nail I scrape out the sting if it is still adherent, and immediately grasp with the thumb and finger the portion of skin where the puncture is, squeezing it very firmly between them—in fact, pinching it quite violently. This has the effect of numbing, to a great extent, the sensibility of the nerves in the portion pinched, so that the effect of the poison is not felt on them. It also has the effect of preventing the spread of the poison into the surrounding tissue. After holding in this manner for a few seconds I ease up on the pinching. If the pain begins to return I tighten the "pinch" again, and hold it until, on letting loose, the pain no longer returns, and I know the poison has lost its power to produce irritation of the nerves, and, consequently, pain; and that is generally the end of the trouble with that sting. Occasionally, and especially if you have forgotten during the first hurt of the sting, and rubbed the spot a little, you will have swelling later, with the discomfort attending it; but the severe pain caused by the poison has been avoided.

This may be considered a good deal of trouble and loss of time, and, if resorted to every time a sting is received, it might be so; but that is scarcely necessary.

Of the stings I receive while in the yard, probably four-fifths of them could not be located by me in five minutes after receiving them; but, there is the *other fifth.* As every bee-keeper knows, he occasionally receives a sting that is painful beyond all sense or reason, and makes him feel as though he wanted to say or do things. These are the stings that the pinching treatment will relieve, and enable him to keep his temper, and, after a few minutes, go on with his work; and I consider it well worth the time and trouble required.

To sum up the treatment, *do not* rub the place when a sting is received; *do not* resort to medicines applied over the spot, as they can do little or no good; *do not* lose your temper. Do at once, if the sting appears to be a severe one, *and you have time*, scrape out the sting with the finger-nail; grasp, with the thumb und finger, the skin where the puncture is located, and raise from the flesh underneath, and *pinch it hard*, holding it firmly until, on letting loose, the pain no longer returns. Resume your work with the charitable thought toward the bees that they do not sting you in a spirit of malice, but in the legitimate defense of their home and property.

Fort Larimer, Col., June 1.

[Your treatment seems reasonable; and whether you are a physician or not, it is quite in line with a similar one applied in the case of rattlesnake-bites. A friend of mine in Texas had a little girl that was bitten by one of the reptiles on the arm, below the elbow. Her arm was tightly bandaged just above the wound, to prevent carrying the virus by means of the blood to the heart. In the mean time a doctor was sent for. When he arrived he stupidly ordered the bandage removed at once, with the result that the poison was carried almost immediately to the heart, causing death in a few minutes. My friend told me that this physician simply did not understand his business or else he would not have given such blundering and fatal advice. The trouble was he ordered the bandage removed *too soon*, before the poison could be diluted locally. The girl was doing nicely up to the time of the loosening of the bandage. I understand that snake-bites should, when possible, be treated by cutting off the circulation to the heart by means of a rope or handkerchief bound tightly above the wound. The bitten portion should be cut out, or when practicable the poison should be sucked out by the mouth. An old trapper once told me that he was bitten at a point where he could not strangle the circulation, so to speak, or reach the wound with his mouth, and he was alone. With his hunting-knife he cut out the portion of flesh bitten by the snake, for there was no time to lose. The part removed turned perfectly green in a few minutes, but our old friend lived, without the use of liquor or any other dose. Now, then, to get back to our text, your treatment is a good deal like the rational treatment applied in the case of snake-bites. But with bee-stings it is not necessary (and perhaps it may be impossible) to remove the virus, because the opening through which the poison is injected is very small indeed. If I understand the philosophy of your treatment, it is that the poison will be dissipated locally in the blood, and when the pain disappears the blood with the poison greatly diluted can be allowed to circulate as before.—Ed.]

UNRIPE HONEY FOR THE CONFECTIONER AND BAKER.

How it May Injure the Sale of Good Honey; a Vigorous Protest.

BY R. A. BURNETT.

In a recent number Mr. A. I. Root, in one his Home articles, spoke of a bee-keeper in Northern Michigan who sold her honey in a perfectly raw state to a confectioner, and that both the buyer and seller of said honey seemed to be well pleased with their operations. "The producer sold a much larger quantity of honey from each colony of bees by taking it out of the combs before it was sealed than if it had been sealed and allowed to ripen before extracting."

Now, if there is any one thing that is more injurious than another to the sale of extracted honey, it is unripe or improperly cured honey. I do not know that I have read any thing in a long time which annoyed me more than the publicity given to that method of obtaining a large quantity of honey.

I have for many years sold honey to manufacturers; but where they got uncured honey it had the effect of reducing their consumption in the near future, as it did not give satisfaction in the product of which it was a component.

I will take the liberty of citing a most striking example of marketing honey in a green state. Certain bee-keepers in the main buckwheat sections of New York, in recent years, got immense returns from their bees by taking off the combs before the honey had been sealed, or very soon thereafter. Some of them were called "Lightning Operators." Their honey was sold on the reputation that buckwheat honey had made for itself, that of being a good article for baking purposes; but after two or three years of disappointment with buckwheat honey (that they occasionally got hold of) these manufacturers finally determind that they would use no more buckwheat honey, for of late it had been very unsatisfactory in many instances. The result is, that for the past two or three years these largest of consumers will not have any thing to do with honey that has any symptom of buckwheat about it; and as its use for other purposes is very limited we have great difficulty in disposing of it; and when we do it is at a low price.

I am firmly of the opinion that, had it not been for the greed of these bee-keepers, buckwheat honey to-day would be in as great demand as it was ten and twenty years ago; for at that time it was considered one of the best kinds of honey for baking purposes.

Some mention has been made of late concerning Cuban honey, or the honey of the West Indies, which honey has also been largely used for baking. If these tactics of marketing the unripe product are followed they will soon bring the product of that section into such disrepute that honey from the islands will be shunned just as buckwheat is in the United States at the present writing.

Chicago, June 6.

[Mr. Burnett is entirely right, and we (A. I. R. and myself) wish to endorse his protest from beginning to end. Mr. Root senior only meant to refer to what had been done by one bee-keeper in Michigan; but it is apparent the practice should be condemned just as vigorously as actual adulterating, for the one leads almost to as serious consequences as the other. It is well known to the writer that some bee-keepers in York State have been careless about putting out unripe buckwheat honey; they supposed that so long as it was used for manufacturing purposes no harm would result; but if they could see some of the protests I have seen, they would let the honey fully ripen in the combs before extracting. It is true that the market for York State buckwheat extracted has been injured almost beyond repair. In saying this I do not mean to imply that all buckwheat from that section has been unripe.—Ed.]

Heads of Grain from different fields

TRANSFERRING BY THE SHORT METHOD.

I have a very strong swarm that came to me in 1902, in a box hive, that I intend to transfer as soon as they swarm, by the "Heddon short way," as described in the A B C of Bee Culture. If the queen should refuse to come out, what could I do to get her? My old hive is only partly filled with frames; and their delay in swarming is because, I suppose, they are filling the hive to the roof. On page 337, in the A B C book, you say, "If the old queen in the new hive is a valuable one she should be caged at the time of making the second drive." Why should she be caged at the second drive? S. A. PEAK.

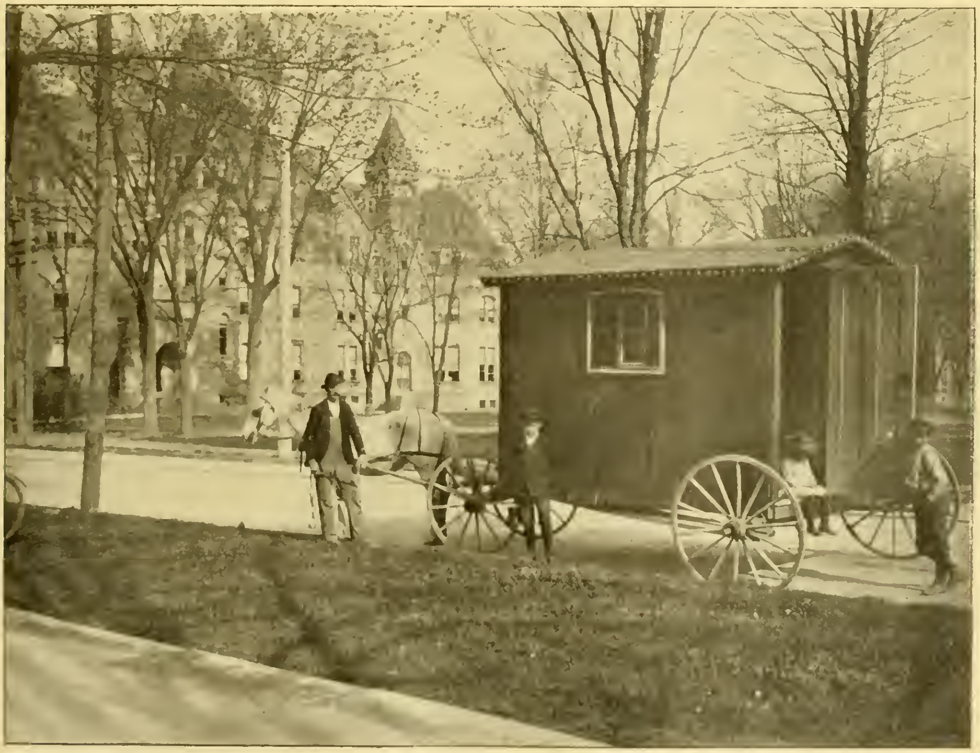
Northumberland, Pa.

[If the queen refuses to come out after driving (an altogether unlikely probability), the only thing to do is to tear the hive to pieces and hunt till you find her; for to carry out the Heddon plan the old queen must be out of the old hive and in the new one. If you do not see her at the first drive that would not be proof that she did not run in with the rest.

The old queen should be caged at the second drive, for the simple reason that, in the old hive in the mean time, there may and probably will be either a virgin or a laying queen, or possibly several virgins. If there is no choice between the old queen that is run out at the first drive, and the young queen or queens in the second drive, pay no attention to the queens, but let them fight it out, on the principle of the "survival of the fittest."—ED.]

POISON OR DISEASE—WHICH?

I am sending you a specimen of a diseased honey-comb which is troubling us bee-keepers of this county in half a dozen apiaries, to my knowledge. It has appeared in 50 to 250 hives. In my opinion the disease is neither foul brood, black brood, nor pickled brood. A great many of the bees have no wings. You can see they are not capped over, but slightly raised above the comb. It is worse in some hives than in others. I have lost 80 hives. The bees did not all swarm—only a few; and what did swarm with me went into the hives. The disease is in the mountains more than in the valleys. The honey crop up in this



CHALON FOWLS' PORTABLE EXTRACTING HOUSE. SEE EDITORIALS.

county will be poor on account of disease; also weather has been cold up to the present time. We had frost in mountain districts up to the 20th of May; climate seems to be changed altogether. A. L. C.
New Almaden, Cal., May 29.

[The brood has been examined, but I am unable to diagnose it. It seems to have none of the symptoms of foul brood, black brood, or pickled brood. If you were not practical bee-keepers I should say that this sample of comb had been chilled or overheated at some time. Heat or cold would cause the young bees to hatch without wings. We are sending your letter, together with the brood, to Prof. Frank Benton, Apicultural Expert at the Department of Agriculture, Washington, D. C. But I would suggest, in the meantime, that, if heat or cold is not responsible for the condition, it is poison. The bees have gathered this poison, either from the spraying of trees or because certain persons have set out the poison with a view of killing off the bees. The poison theory seems to be the most probable of any thing.—Ed.]

DO BEES EVER LEAVE A STING IN A BALLED QUEEN?

If what you say is true on page 395, in regard to bees leaving their stings in a queen, it must also be true that they leave their stings in drones and robber bees. And, if this is so, please inform me how long a colony of bees will have a standing army.
Matanzas, Cuba. C. E. Woodward.

[But the drones and workers are of small importance compared with a queen; and if the bees, we will say, in rare instances, would leave a sting in a queen, it would not necessarily follow that they would also leave a sting in drone and robbers, because the desire to make way with a queen is much more pronounced? After all, I am only referring to the exception that proves the rule. That I saw the sting in the queen's body, I *know*. In proof that I was not mistaken, I submit for your consideration the testimony of one who has seen just what I saw. Just listen:

> I notice on page 395 what both Mr. C. E. Woodward and yourself have to say about bees leaving their sting in a queen. Mr. W. is wrong, as I have taken a queen from a ball of bees with three stings stuck into and adhering to her. D. Chalmers.
> Poole, Ont., May 11.

Mr. Chalmers is an old correspondent. But if this is not enough, there is more proof that we could get.—Ed.]

THE SECOND DRIVE OF BEES IN A FORCED SWARM; WILL THEY FIGHT?

When you add the bees that have hatched from the brood of the old hive to the new forced swarm, will the bees belonging to the forced swarm not treat bees from that source (the old hive) as strangers?
Trair, Iowa. Robert Provan.

[As a general rule you can shake a second lot of bees after they have hatched from the brood-combs in front of the hive having the first lot of bees. The old hive should, of course, be removed then to a new stand. There may be fighting on the part of the bees; but in the case of the average Italians, when a lot of bees are dumped in front of an entrance there will be no quarreling. If perchance there should be, smoke them a little.—Ed.]

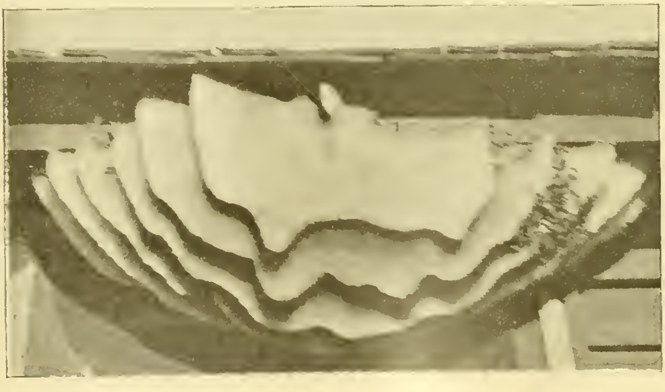
A BRICK HIVE.

Would it be a success to build a hive on a solid rock, with brick plastered for sides? That would give a 4-inch wall all round. I think it would be cool in summer and warm in winter. John C. Hamilton.
Henderson, Okla., May 20.

[Such a hive as you outline would be altogether too cold in winter. The brick would convey the cold air of the outside clear into the cluster of the bees; moreover, such a hive would be too expensive.—Ed.]

What kind of weather does it take for flowers to secrete honey? What is the matter when drones are led out in the spring and killed?
H. M. Pace.
Kysburg, Ky.

[Generally speaking, hot weather with hot nights, with every now and then a warm rain, produces conditions favorable for nectar secretions. When drones are killed in the spring it would indicate that the bees are possibly short of stores.—Ed.]



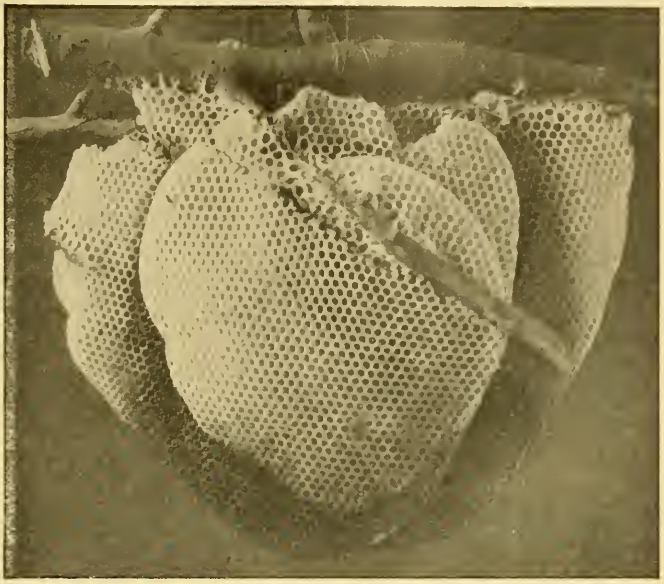
HIVELESS BEES IN COLORADO.

A COLONY OF BEES WITHOUT A HIVE.

About six weeks ago a friend of mine found a bee-tree in an old apple-orchard, and wanted me to go with him and get the honey. I supposed from what he said that they were in a hollow tree, asd is generally the case, an was very much surprised to find them in a branch of the tree, where they had evidently been since early last summer. They must have had an unhappy time during the many cold rainy days we have had here in Connecticut the past season. The latter part of October we had a good many frosty nights, and that we should have found any bees at all on the combs was surprising to me. There were not any bees on the outside, but from betwen the combs I shook into my nucleus box about a quart of golden Italians. I inclose two photographs, one showing the apple-tree on which the runaway swarm had made their home. The other one shows a closer view of the home; but we did not get any honey; not a trace could we find in any of the cells. W. W. LATHROP.

Bridgeport, Ct., Dec. 16.

[As will be seen from the date, the photos and letter came to us some time ago. After we had the engravings made we lost track of the manuscript until now.



HIVELESS BEES FROM THE LIMB OF AN APPLE-TREE.

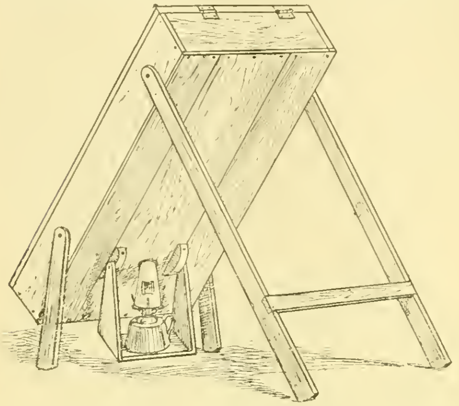
HIVELESS BEES IN CONNECTICUT.

It is very unusual in the northern and eastern States for a swarm of bees to build combs in the open air; but it is not an uncommon thing in California, and some of the climates warmer than we have it here in the East

Several years ago I myself photographed one such colony hanging to the eaves of the honey-house of R. C. Aikin, at Loveland, Colorado. It was a swarm he said that had clustered under the eaves of the building, and not having time to take care of it he left it with the result that it built comb, and he was proposing to leave it out all winter. He did so, but the colony died. My photo that I secured at the time I now present for the first time in connection with the one by Mr. Lathrop.—ED.]

COMBINATION OF SOLAR AND ARTIFICIAL HEAT.

To render wax on a large scale, especially from old combs, and do it effectively, that is, leave as little wax as possible in the refuse, pressure under steam is probaly the only successful way. At the same time, a solar wax-extractor is a very desirable implement in any apiary. We are well aware that it is not a perfect machine—it is too slow in its operation. I have watched it many times, trying to find some way to make some improvement whereby its efficiency might be increased. I could see the wax drop off from the little chunks of comb, could see it run down the sheet-iron bottom, but yet it would take a good while before it would run in the dish. I discovered that the wax at the lower end, just before it passed (or during its passage through) the screen would thicken and not move as readily as it did higher up; and for experiment's sake I decided to add some artificial heat.



By means of a swing-shelf (see illustration) I placed the little Daisy foundation-fastener lamp in such a position that the top of its chimney just entered a hole in the wooden bottom, right below that place where the running wax seemed to lose its mobility. The effect was surprising With the lamp-attachment it required less than half the time to fill the dish at the lower end that it did before without it, and I am well satisfied that the little lamp greatly increases the wax productions of the extractor.

A swing-shelf is preferable, because, by its easy adjustment, a perpendicular position of the lamp can always be maintained.

La Salle, N. Y. G. C. Greiner.

[The principle of using artificial as well as solar heat for melting wax is one that has been in use in Colorado for some time, and with very good results. Our readers remember that R. C. Aikin, of Loveland, Colorado, and Mr. Philip Large, of Longmont, the same State, both use artificial heat in connection with that from the sun. The principle is correct, and it may be worth the while of supply manufacturers considering the advisability of an attachment for artificial heat on the plan above shown, when so ordered on solar wax-extractors which they make.—Ed.]

DISINFECTION WITH FORMALIN NOT NECESSARILY COMPLETE, AND WHY.

In disinfecting combs containing foul brood it should be borne in mind that, while the *bacillus alvei* is destroyed by formalin, when completely exposed to its action, bacteria (or spores) covered with wax, paraffine, or other air-tight covering, are not killed by any thing without melting the wax. Any bacteria or spores that the bees might incorporate in the wax of the comb during construction or repairs would escape the effects of formaline. Later, in making repairs, should the bacteria be uncovered, reinfection would follow the first visit of the comb-builders to the brood.

Frames and hives brought to the laboratory to furnish cultures of the *bacillus alvei* were easily disinfected by placing the hives and empty frames in the dry sterilizer and running the temperature up to 400° F. After repainting, new colonies were introduced, with no return of the infection.

Disinfection with gas requires great attention to details; crevices filled with wax or propolis containing bacteria would be a constant menace to the health of the new colony.

In the average apiary the wise and ambitious larva will prefer new combs, and a hive that has been baked in the stove; and he will leave the foul-brood honey to the apiarist—it is beyond the pale.

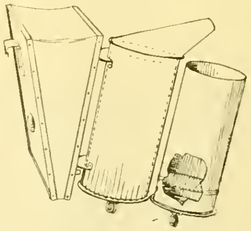
Shirls B. Jackson, M. D.

Pittsburg, Pa., June 9.

[What you say is undoubtedly true; at all events it would be well to err on the safe side.—Ed.]

THE VESUVIUS SMOKER—A SUGGESTION.

I was trying a new Vesuvius smoker today. It works very well as it is; but would it not work better if that back end that has theh andle on and the grate in had a cylinder-shaped tin a little smaller than the back that has the grate in, fastened to the back end solid, and extended up to the snout against another grate with a little air-space between this new cylinder-shaped tin and the body (or stove) of the smoker, as it is now? The air-space between the two would let it work just as easily as it does now; besides, it wouldn't get so hot. Then the best thing about it would be that the fuel could be put in at the open end of this new cylinder-shaped tin, and leave the fire all at the back end, the same as a muzzle-loading smoker. Or if it is not necessary to put an extra grate up against the snout, there could be a rim there to keep the fine coals from getting in the air-space between the two cylinders



Geo. E. Rozelle.

Maple Lake, Pa.

[Your suggestion is in line with that made by one or two others. It may be that it would be an improvement, although it would increase the cost slightly. We will have some smokers made on that plan, and test them this summer. The illustration shows the idea in detail.—Ed.]

BROOD IN A PATENT HIVE.

Why did not my bees raise brood in the fall, October and November? A man came here and wanted to sell me a hive and the right to make them. He said there was no brood in ours, but in his hive they would make comb all winter, and brood. I did not believe it; but they have so far. In some ways I like the hive; in others I do not. But it is the only hive that was making comb and brood, and is now.

MRS. A. E. CHESTERMAN.

Cowden, Ill.

[In a normal condition bees seldom raise brood in the fall. If that patent hive had brood in it, it was only accidental. A young queen that has just begun egg-laying will often and generally lay in the fall when older queens will have ceased; and it is possible that the patent hive had such a queen in it.—ED.]

THE CIRCLE OF BEES AROUND THE QUEEN; THE EDITOR'S VIEW CONFIRMED.

Mr. Editor:—You are right, on page 64. Queens are often, if not usually, surrounded by a circle of bees, and the latter's action toward the former is as you say when the colony is undisturbed. I have watched this a great many times in my full-size observation hives; but as to finding a clipped queen, after a swarm has issued in a cluster of bees on the side of the hive or somewhere, that has been an exception with me.

BLUE THISTLE.

Echium vulgare, blueweed, or blue thistle, page 65, appears to be a bad weed in Virginia. The meadows are one continuous mass of blue blossoms—a sight to behold, and not easily forgotten. If land were farmed systematically, and a short rotation practiced, the weed could do but little harm. It is a question whether bee-keeping could be carried on profitably in Virginia without the blue thistle. I have seen the bees on the blossoms in October, but they do not work on them profitably as late as this. It is seldom that a perceptible amount of honey is stored in August. The quality is good, but hardly equal to our basswood or clover honey.

F. GREINER.

Naples, N. Y., Feb. 2.

THE NEW DRUG CURE FOR FOUL BROOD; A CORRECTION.

Your footnotes to Dr. Miller, page 73, and to Mr. J. M. Thomson, page 391, are somewhat misleading. "Formalin," "formol," "formaldehyde," etc., are aqueous solutions, about 40 per cent of formic aldehyde, a gaseous body formed from methyl alcohol by oxydation. Disinfection is accomplished by boiling the 40-per-cent solution of formaldehyde in a generator and conducting the liberated gas into the compartment to be disinfected, which should then be kept closed about 10 hours. Druggists, of whom the substance would have to be bought, also sell generators with instructions how to use. Mr. J. M. Thomson's device ought to prove perfectly reliable; perhaps he uses a little too much formalin, as the directions for 1000 cubic feet of space to be disinfected is given as 5 ounces. Spraying will be entirely useless to kill germs. Pastilles and a powder under the name of "glutol" are not to be recommended, as the percentage of formaldehyde gas in them is not certain, and they would have to be regenerated as the solution.

H. O. VASSMER.

Excelsior Springs, Mo., May 7.

BEE-PARALYSIS; DON'T MAKE THE BRINE TOO STRONG.

On page 397 you ask for experience of bee-keepers in treating bee-paralysis. After reading the preceding article by A. H. Guernsey, I concluded to try the brine cure on my bees, as I was troubled with paralysis last season, and have been more or less this spring. I took two handfuls of rock salt and made about two quarts of strong brine, then spread the combs and gave them a good sprinkling May 30. As a result hundreds of adult bees were killed by the brine; but at this writing it is too soon to see whether the brood and larvæ are affected. I write this as a warning to others to be careful not to use brine too strong.

Denver, Colo. J. L. BELLANGEE.

A WHOLE APIARY DESTROYED BY SPRAYING.

Please discontinue my subscription for GLEANINGS, as I am hardly able to keep it up; besides, my whole apiary was ruined entirely by a conscienceless neighbor spraying his trees when in bloom.

Berne, Ind. JACOB J. SCHWARZ.

[This is one among numerous other instances that show how bees are killed by spraying when trees are in bloom. Certain manufacturers of spraying-outfits claim that the spraying-liquids they recommend will not kill the bees; but they do just the same. Any thing sufficiently powerful to kill forms of life that injure our fruit-trees is sure to be strong enough to kill a like form of life—the larvæ of bees.—ED.]

BEES POISONED ON THE COTTON-PLANT.

Did you ever hear of any trouble in the South about putting Paris green on the cotton to kill cotton caterpillars or worms? I hear it will kill them. I moved my bees here, so that it did not kill all of them when it was used.

JAMES MCCOOK.

Natchitoches, La.

[J. M. Jenkins, in the cotton-belt, to whom this was referred, replies:]

I have had several reports of parties losing all or nearly all their bees from planters poisoning the cotton to kill the caterpillar, or "army worm," that occasionally appears, and that will destroy the cotton crop if allowed to. The remedy is to spray the plant with Paris green or other poison;

and as this is in June and July, when other forage is scarce in most localities, it catches the bees. J. M. JENKINS.

Wetumpka, Ala., Apr. 21.

PUTTING ON HIVE-NUMBERS WITH A STENCIL.

After reading "A Method of Hanging Hive-numbers," on page 445, I was prompted to write my experience. I have been a reader of GLEANINGS for some time, and these suggestions offered from time to time are of great help to me as a beginner. After treating my hives and supers to three coats of paint, I number them in black paint. For doing this I use stencils of my own make, with figures three inches high cut in cardboard. I number the hive, cover, supers, and stand. This, it seems to me, adds to their beauty. It also is of use to me in keeping a diary. I devote one page to each hive, stating when hived, number of pounds of comb honey taken off each year, whether wintered in cellar or outdoors, if fed in spring or fall, and many other small matters that are very interesting to refer to later in an experimental way. F. H. HOFFMAN.

Carleton, Mich., May 25.

HOW TO HASTEN OR RETARD THE CANDYING OF EXTRACTED HONEY.

Friend Root:—With reference to hastening or retarding granulation of extracted honey, I would say that, in my practical experience of 20 years, if you wish to hasten it, extract before it is ripe, and keep in a cool place. If you wish to retard it, defer extracting until *thoroughly* ripened, then keep in a warm dry place. It seems to me that is about all there is to this matter, from a non-scientific standpoint.

PREVENTING THE MIXING OF SWARMS BY THE CLIPPED-WING PLAN.

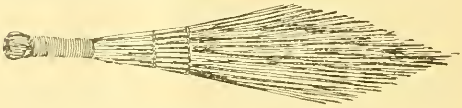
After having considerable experience with sheets and blankets for the prevention or stopping of the mixing of swarms, if there are several of them in the air at a time, as there frequently are, and the bees are determined to enter one hive, or a less number than that from which they issued, I would say the sheets or blankets are quite effectual; but where the object is to prevent mixing, and where one swarm is in the air, and were over issuing, and the sheets or blankets are used for the purpose of stopping the issuing of these swarms, *I* would say that in nine cases out of ten they would be a failure; and in the first case I would rather have a good smoker than a wagon-load of sheets and blankets. I am speaking from personal observation, based on the supposition that the queens of these swarms are all clipped, caged, and at the entrance of their new hives, on old stands. The old hives being removed, I have had as high as 8 swarms in the air at the same time, and each one hiving itself individually and automatically, with no helper, and no assistance except a Bingham smoker, and some of the hives only two feet apart. ELIAS FOX.

Hillsboro, Wis.

A BEE-BRUSH MADE OF PINE NEEDLES.

I send you a bee-brush I use and make in a few minutes' time, out of pine needles, which is, I think, decidedly the best plan of brush I have ever used. The shape enables you to brush the bees from both sides of a comb without turning the brush in your hand, and the point at the end is just the thing for getting the bees out of cracks, holes, and corners.

These brushes should be made preferably of light broomcorn, shaped from the front end as made, see cut, and do the trimming off the back, as this allows all flexible straw on edges of brush. The Coggshall brush is too thick and too broad and too stiff, and cripples thousands of bees, and angers many. I extract from 5 to 7 bbls. of honey a day, and brush all the bees with one of those crude home-made affairs. We have no broomcorn here, or I'd have made a better-looking sample.



Wewahitchka, Fla. D. R. KEYES.

[Some of the Coggshall brushes that have been sent out are too heavy—have too many strands. We have tried to get the broommakers to thin them out more, but they seem determined to make them heavy, because they are accustomed to make them so. Any one who has a bee-broom that is too heavy can very easily thin it out with a pair of shears, to a point when it will give a light, gentle sweep over the combs.—ED.]

QUEENLESS BEES THAT DIDN'T BUILD CELLS.

Wishing to Italianize a colony of blacks, I removed the queen, finding her on the frame, thus leaving them with plenty of brood and eggs. Going back a few days later to look for queen-cells to destroy, I was surprised to find there were none. Thinking it was a case of two queens, I ran them through an excluder. Still I was more surprised, as I found no queen. Thinking she had eluded me I ran them through again, but no queen could I find. The bees—a populous colony—allowed all brood to seal without a single cell started. Lastly, to cap it all, they accepted an Italian queen which at once commenced laying.

Are black bees subject to insanity, or did they mistrust another queen was coming? G. A. BOSTWICK.

Verbank Village, N. Y.

[This case is quite remarkable, if you are sure there were no cells; for it is one of the rules that queenless bees will always build one or more cells. In this case it is quite possible, and I might say probable, that there was one or more cells built, that escaped your notice. I have seen cells capped over, the ends of which were but a little more than flush with the combs, which could very easily escape scrutiny. I am of the opinion that, if you had not introduced a queen, you would have found later a virgin in the hive.—Ed.]

HOW TO CONVERT A CIDER-PRESS INTO A WAX-PRESS.

I read Mr. Salisbury's description of his wax-press with interest. I will suggest an improvement. When I made my first shipment of bees from the South, some years ago, I had a lot of broken combs. I made 100 lbs. of wax, which was pressed in a cider-press. I got most of the wax out, but it made a mussy job. Two years ago I had a bottom, circle, and follower, made out of beech wood, that looks exactly like Mr. Salisbury's cut. I made 150 lbs. of fine wax during my spare time in two days. I placed a blanket over the press to keep the heat in. Bee-keepers having a cider-press can convert it easily into a wax-press.

West Bend, Wis. H. C. Ahlers.

PLURALITY OF QUEENS FROM SUPERSEDURE.

I have a colony of bees that superseded their queen. Instead of finding only one queen about their hive they hatch from I found thirteen nice queens. A few were in the cells yet, ready to crawl out. I counted the cells that had queens in, and found some 30 in all where queens had hatched out. Now, what is the cause that so many hatch out, and the bees do not kill them when the first one is hatched out?

Wm. I. F. Hoffa.

Womelsdorf, Pa.

[The circumstance you relate is nothing so very unusual, except that there were more than the average in the case of a queen that is superseded. Hybrid bees, or Italians crossed with Holy Lands or Cyprian, might raise thirty or more cells when they were superseding an old queen if she was about played out.—Ed.]

CURING A BEE-STING BY THE APPLICATION OF A SLICED ONION.

I noticed in A B C of Bee Culture that nothing but hot or cold water is any good for a bee-sting; but I was stung on the face, and it swelled up in my head, and down to my shoulder, and it kept swelling for twenty-four hours, and I bathed it in cold water, and then went on with my work. My mother looked in a doctor book, and that recommended fresh-cut onion above all others. I tried it, and the swelling started to go down at once.

Ethridge Webber.

Tolland, Mass., June 15.

[You will pardon me, but I question very much whether the application of the onion had any thing to do with the reduction of the swelling. The poison from a bee-sting is injected through the skin through a *very minute* opening. The very fact that swelling took place shortly after, goes to show that the virus had been dissipated locally in the tissue to such an extent that no remedy of any sort, applied from the *outside*, could possibly neutralize the poison in such a way as to reduce the swelling as you describe. Heat relaxes, cold contracts. The only thing that would be of any value after swelling takes place is hot or cold water, preferably hot. In the one case it would reduce congestion of the parts; in the other, it would reduce the fever. Alternate application of hot and cold water would be more beneficial than either alone.—Ed.]

YOUNG BEES NECESSARY TO ENCOURAGE THE FLIGHT OF QUEENS.

As a general thing I do not like to offer any advice; but in the matter of mating of queens in confinement, I am sure that you will always have trouble trying to get young queens to go out where no young bees are allowed to fly. With me such a thing would be worse than folly. Not having sufficient young bees is the main cause of the section-box nuclei being a failure. They encourage and direct the young queen more than you think. Remember, I know this from trial and close observation.

Vigo, Texas. J. E. Chambers.

[There may be something in your suggestion.—Ed.]

FEEDING BACK FROM BELOW.

Have you ever tried feeding from below when feeding back? I fed this way last year, and had such good success that I shall try it again this season. The honey finished in this way was as nice as any I had. Steen Freeman.

Cedar Mills, O.

[The usual plan is to feed from above. I have never had any experience in feeding back, and could not form an opinion as to the merit of the plan you speak of. Perhaps some of our subscribers who have, can give us their experience.—Ed.]

RAMBLER'S STRAINER.

What back numbers of Gleanings contain a detailed description of Rambler's strainer? Is the improved strainer on the market? L. J. Utt.

Pala, Cal., May 5.

[Rambler's strainer was described and illustrated on page 683 of our issue for Sept. 15, 1899.—Ed.]

A CHEAP HIVE-TOOL.

A good hive-tool is a piece of buggy-spring. You can find plenty of them at any shop where they repair buggies, already broken in two, and sharpened at one end flat. Some are square on the flat end, and some round.

Clinton, Ill. Henry Wilson.

OUR HOMES, BY A. I. ROOT.

And the Lord God formed man out of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—Gen. 2: 7.

I was somewhat surprised recently to see the *Sunday School Times* take the position strongly that the *soul* perishes with the body, and that it is only the *spirit* that is imperishable. Of course, there were several correspondents who disagreed, and quoted the scripture to prove their position. The editor replied that the terms *body*, *soul*, and *spirit* are often used in the Bible in a broad sense, or perhaps interchangeably; but he insisted, notwithstanding, that the general meaning of the word "soul," as used in the Bible, is the part that perishes with the body. After thinking the matter over, and studying my Bible, I am inclined to believe that the position is correct. For instance, the Holy Spirit is often mentioned. We speak of the influences of the Holy Spirit; but nowhere in the Bible is there any mention of the soul of God, nor any suggestion that God *is* a soul. Souls belong to humanity, and perish with the body. If this is so, the expression "immortal soul" is an erroneous one. No souls are immortal; but the spirit is immortal, and lives for ever.

Now, this is a little preface to what I want to talk about; and may be you will think the connection with the following is rather remote; yet somehow or other they persist in linking themselves together. I am going to quote again at length from my good friend T. B. Terry. Perhaps some of you may think that we are giving a good deal of space to this matter of health, and to the food we eat. I admit it, and sometimes I am tempted to think that our discussions do not amount to much after all; but I think daylight is coming; and friend Terry gives us a most vivid glimpse of the direction from which daylight is to come. Now read carefully the following, taken from the *Practical Farmer* for Feb. 7 :

THE POWER OF THE MIND OVER THE BODY—WORK FOR HEALTH WITH ABSOLUTE FAITH IN YOUR SUCCESS.

Several years ago, when the writer was sick in New York, a first-class physician was employed. He appeared to know his business perfectly. After analyzing the urine, as he said, he understood the case exactly. He told friends that I was in a critical condition; however, I got better in a few days. Before I left he said to me: "You are subject to kidney trouble. There is an excess of acid in the urine. In the future you must never eat any thing that is sour—vinegar, sour strawberries, sour oranges, lemons, etc. They will aggravate this chronic trouble of yours." This was said with authority, and I had no more doubt of the truth of the statement than I had of being alive. His manner and earnestness made it a settled fact in my mind. I did just as he told me, for years, except that once in a while the desire for sour strawberries, or some lemonade, was too great, and I ate a few, or drank a single glass, always expecting to pay dearly for it. In every single instance my symptoms grew worse after indulging in this way, showing conclusively to my mind that the doctor was right, of which I had never had the slightest doubt, however. During the warm weather in particular, how I did want something sour! At last I would indulge, and increased trouble would come in a few hours. Sometimes I kept at it, but was soon in such distress that I was only too glad to quit it. Although the doctor's directions were carefully followed, as a rule, and other good doctors consulted, life was a burden much of the time during those years. Well after a time I began to think and study over the matter in dead earnest. My old motto, "Where there is a will there is a way," came to my mind, and I wondered why that could not be applied to curing bodily troubles as well as poor land and hard times. Being in a frank mood to-day, let me tell you that my first inspiration came from a so-called fakir. When I was completely discouraged, could not eat any thing scarcely without its hurting me, and doctors and medicine did no permanent good, a circular happened to come from a man who promised to cure any disease, no matter how bad, if the breath still remained in the body, and to do it entirely without medicine. Treatment, $5.00 a month. I read it to wife, making fun of it, of course. She said: "If there is any possibility of his helping you any, why not try him? If you do not take any thing he can not hurt you." Now I knew it was all a humbug, but, just for the pleasure of studying the scheme, and having something new to think about and to help pass away the time, I sent $5.00, with description of my troubles. The reply came promptly, and was overflowing with hope and unbounded assurance that the writer could not fail. He impressed on my mind with wonderful force, what I was fairly well up in before, that I must have more oxygen from breathing more fresh air, for one thing. But here was the great point, which I copy from his letter: "Just settle it, once for all, in your mind, that you are going to get entirely well, sooner or later, doctor or no doctor, as you certainly are." Why, my dear friends, I went down stairs after reading that inspiring letter, like a boy, and within 24 hours new life began to come into my body. The mind, the spirit, was roused marvelously by the positive assurance, or magnetism, or whatever you call it, of the man, and, frankly, he did far more for me than all the doctors had been able to do; and still not long afterward the postal authorities arrested and fined him for using the mails to swindle people. Doubtless his game was to make money, and he claimed to do what he could not, but I was vastly more than satisfied with the value I received for my money, and before I get through you shall judge about the doctors. Among other things, I got some good litmus paper at a drugstore in the city, and began to keep an exact record of what I ate and drank daily, and how I felt, and the condition of urine. Litmus paper, you know, is blue but turns red when wet with acid, more or less, according to the amount present. In due time it was proven, absolutely that when I felt the worst and suffered most there was the least acid in the urine. When I told this to one of the physicians who had tried in vain to cure me, he said at once, "It is an alkali condition, then, that is making the trouble." Oh! why couldn't he have discovered this years before? Well, I at once made a quart bowl full of good strong lemonade, and never took it from my lips until the last drop was drained, and another quart went the same way before night. Oh, how good it tasted! I had craved it so. It did not hurt me at all; in fact, I at once felt better. I knew when drinking it, absolutely, that the doctor had been wrong. Not ten days before, my wife had lemonade on the table at dinner time, and I wanted it so badly that at last I drank one glass, expecting that it would hurt me, as the doctor said, and it did. There is no chance for mistake in this matter; I know what I am writing. I now use lemons freely whenever the acid is craved. I carry lemons and sugar with me, winters, always. My troubles in the past came partly from withholding from the body the very fruit acids that it needed and craved sometimes almost beyond endurance. You may gather several points from this article. One is the marvelous power of the mind over the body. When you determine to get well any way, whether or no, you have made a tremendously long step in that direction. I confess I could not believe myself that the very thing I needed would hurt me, just because I was certain it was going to, if I had not actually had years of experience in the matter, on both sides of the question. Many a physician owes his success, not to drugs he gives, but to the power he possesses of making patients certain they are going to get well right along. On the other hand, unscrupulous doctors can keep their patients back and line their own pockets. As the space is more than full you may look for the other points; they are easy to find.

There, friends, the above is from Terry, whose reputation is world-wide as a teacher and lecturer at farmers' institutes. You may smile when you read it. I am not sure but I laughed out loud. You may say there is no particular point to it; but there is a point that gives a glimpse of the wonderful way in which we were created, according to our text, and the way in which man became a *living soul*. We are creatures of habit. Why, look here. I have a nap every day just before dinner. My system, or whatever you may call it, has become so accustomed to it that it clamors for quiet, rest, and sleep, just—well, we will say as a pen of pigs get uneasy when they are not fed about the usual time. This involuntary part of myself that takes care of the digestion and other things gets into a habit, or rut. On Sunday, in order not to get drowsy during the sermon, I take a nap, as a rule, at 9 o'clock. I have no trouble whatever, in going to sleep. I always go to sleep instantly. All other days my nap is at half-past ten. Well, every Monday morning at 9 o'clock I begin to feel used up and worn out. Do you know why? Well, it is because, the day before. this peculiar machine of mine had a resting-spell; and *because* it was the day before, it has got a notion into its head (if you will excuse the expression) that a rest should come *every* day at 9 o'clock. For a good while I did not understand why these feelings came at 9 o'clock. After a time I "caught on" that it was Monday morning when I had them. Then I remembered it was the *shadow*, if I may so call it, of the nap I had the day before.

It may not be so with every one; but my organization strongly demands regular habits. The machinery gets ready for food, gets ready for water, at regular periods; and it runs better if *supplied* at regular intervals. You all know more or less about this. You have all had experience in the same way. Well, now, this doctor told Terry that a particular kind of food was hurting him. He proved it by chemical demonstration. An excess of acid and fruit would have to be stopped. Why, no wonder our poor friend said it was "as plain as daylight." He stopped eating fruit, fully expecting that indigestion and distress would cease, and they did so. Why, I have gone without fruit, lemonade, and things of that sort, a great part of my life, just as friend Terry did, and have told friends where I was visiting right and left that I could not eat *such* and *such* things without getting into trouble. Once in a while I would break over, as friend Terry says he did, and then I would watch for the unpleasant symptoms. Usually they came. *Sometimes*, however, they did not.

At Omaha, when bee-keepers were eating Rocky Ford muskmelons by the dozen, I said, "Well, now, I do not believe this beautiful fruit or vegetable will hurt me. It seems as if God designed it for human food," and I pitched in with the rest. I had a good half-dozen, one after the other. They all assured me so positively that such fruit would not hurt anybody that I began to have faith it would not hurt *me* a particle.

Now, friends, let us not be in a hurry to rush to conclusions. There is another side to this, I feel convinced. When Terry was conducting farmers' institutes in Missouri he not only ate fruit at mealtimes at the hotels, but he went out into the markets and bought it by the basketful; and I remember wondering if he could stand so much fruit. My impression is, he was eating too much. We have all had experience in eating fruit too freely, say when it sets our teeth on edge, and there is pretty clearly an excess of acid in the system. At such a time, I believe it is *the* thing to have a meal or two of nice beefsteak and graham bread. By the way, I always crave *cheese* when I am eating a good deal of fruit. I think nature would indicate pretty nearly what we need if we could get rid of our *notions*. Yes, dear friends, I do believe that we are all full of notions. With some like myself you might call it "hobbies." We carry these notions and hobbies to an extreme; but does it not seem almost incredible that we should carry them to such an extent that fruit or lemonade would cause us distress, just because we got a notion it would? Is there a possibility that fermentation can get a going, and rouse us up at night during a sound sleep, just because we have got a notion in our heads it would? Why, I am ashamed to admit it, but I am afraid it is true. People get a going in certain directions, and they lose their common sense—yes, they "lose their heads." A man told me an hour ago that the present cold spell (I am wearing an overcoat while I dictate) right here in June was clearly predicted by Hicks. I attempted a little remonstrance. Said I, "Did Hicks say there would be a cold spell here in Northern Ohio?"

"No, he did not say that; but he said there would be hailstorms and cold rains in different parts of the country."

I replied that he could always say that with safety. There never was a June without cold rains and hailstorms somewhere; but when he said, "Oh! but Hicks is always right, I have watched him for years," I had to give it up. There is no use in talking with such a man. He has a notion that Hicks has miraculous foreknowledge, and that it will come out just as he expected it would, every time. You need not laugh at his faith, for there are many of us who reason in the same way. I do not suppose our faith in our special ruts would bring a hailstorm, but I do think it might produce a stomach ache. The action of the mind, as Terry says, has such an influence on digestion that digestion itself is a *slave* to it. The very small boy is too sick to go to school. He is a truthful, honest boy. Suddenly a party comes along that is going fishing. He begins to plead with mamma. He says, and says truthfully, "O mamma! if I go fishing I won't be sick, I just know I won't." If his mother lets him go fishing (of course, it is not the proper thing for the mother to do) it is just as he predicted. He has not an ache, and is not sick a bit—never felt better in his life.

Now I am going to say something that may be a mistake. I think on the whole I will not *say* it—I will only *suggest* it. When I went to Dr. Salisbury (and Dr. Lewis later) they examined my urine and told me what the trouble was, and prescribed a beef diet. When I suggested I did not believe that even the beef diet would stop my malarial chills, they were so emphatic and positive, and they explained it all out so plainly with their scientific instruments and superior knowledge, I could not *help* believing they were right. I once said to one of them, "Why, doctor, how is it possible that you persuade so many people—even those who have been all their lives in the habit of being a slave to their appetites, to undertake this terrible ordeal?"

I had been through the ordeal, not only weeks but months, and I knew what it was. The reply was something like this:

"Oh! we know we are right, and they soon become convinced that we are right, and then they get well and strong."

Well, now, my suggestion is that probably a lot of this may be explained in the way Terry has outlined it. Why, of course this explains a lot of the new treatments—Christian science, telepathy, absent treatment, etc. It is not only unnecessary to see the doctor and hear him talk, but they have acquired such skill of late that they write a little circular, like the one Terry paid $5.00 for, and this circular will have so much energy and vim in it (they used to call it "animal magnetism") that he, the author, makes people *believe* what he says. They eat what they please; and if their faith holds out they are all right. Now, then, can the mind of a sick man be well by just the force of his own will? I do not dare say he can; but I will say he can to a great extent. Then, again, here is a perplexing question: How is it that sickness comes upon us when we are honestly working hard at our appointed tasks—yes, the tasks that we love? Why do we get sick? Where does sickness come from? Dowie says sickness is of the Devil. Well, perhaps Dowie has got hold of a great truth or a partial truth. I don't know but we might as well say it is the evil one as to lay it to some human being that puts *notions* into our heads about sickness.

Every little while some wise man pops up and says, "Go on about your work, and do not pay any attention to your aches and pains. Do not even talk to your friends about your faintness and indigestion. Do not tell your wife. Eat whatever nature seems to crave, and eat in moderation, and do not listen to the suggestion (shall I say of the Devil?) of quack-medicine advertisements. Many people get aches and pains by reading advertisements. The druggists are kept alive (and prospering) because the drugs and the advertisements on the bottles inspire people with faith. Do you remember the druggist's clerk who told us that he noticed that people always got better, no matter what medicine they bought? They were *all good*. Terry's story would indicate, however, that the bottles on the druggist's shelves have nothing to do with the cures performed. It is simply the patient's faith in the wrapper. If he gets it into his head that the medicine is the thing he needs, it proves to be so.

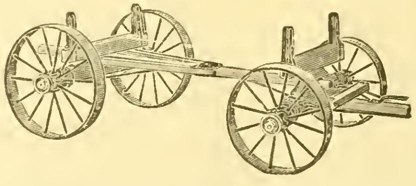
Terry is a little rough on the family doctor where he tells about the doctor's decision from a single examination of the urine. If there is any thing in such examinations, they should be made daily through quite a period. If bad symptoms occur when the urine is strongly alkaline, instead of acid, we are getting right at the root of the matter. This doctor was very ready to acknowledge that it was probably too much alkaline instead of too much acid.

When I read friend Terry's story I had been craving fruit, but did not dare eat it. Even strawberries, when they first began to ripen, seemed to distress me, and I was wondering how it happened. Well, after reading Terry's story I went and made a good bowlful of hot lemonade, and drank it just before going to bed. I slept remarkably well till daylight. In fact, I had made up my mind such *would* be the case after reading Terry's story. It gave me faith. The next morning I ate a great dishful of strawberries, and the same for dinner and supper. That was a week ago. I have been using them freely every day since, and I told Mrs. Root this morning that I had as much vim and vigor and energy as I ever had before in my life.

May God be praised for the privilege of doing what I choose, and still feel well; and may God give us faith in his wondrous loving kindness; and may he teach us to avoid ruts and notions; and, above all, may he lead us away from the *suggestions* put in our minds by the evil one.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.

PACKAGES FOR RETAILING EXTRACTED HONEY.

We have on hand three carloads of glass honey-packages ready for prompt shipment. They are of the following styles: We have a good assortment in our Philadelphia warehouse, and a carload of No. 25 jars at our Mechanic Falls branch. We are prepared to furnish them in large and small lots on short notice The paper bags are new with us this year, and there may be some delay in furnishing large orders. It would be well to anticipate your wants in these and order two months before you need them if you expect to use many thousand. Our first order, which has taken over two months to get from the factory, is for 55,000, 25,000 2-lb., and 10,000 each of three larger sizes. While these last we shall be able to supply them promptly.

Glass Packages for Honey.

Fig. 290.

Fig. 291.

Hershiser Jars.

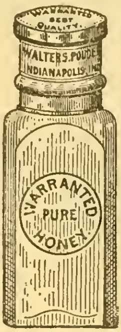


Fig. 192.

Square Jar.

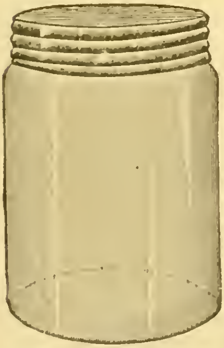
These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight They are made in four sizes square and three sizes round. The 1-lb. size in each style is shown in figs. 290, 291.

¼-lb.	square	Hershiser	jars,	dozen,	50c;	$5 40	per	gross
½-lb.	"	"	"	"	55c;	6.00	"	"
1-lb.	"	"	"	"	80c;	9.00	"	"
2-lb	"	"	"	"	1 00;	10.80	"	"
½-lb.	round	"	"	"	60c;	6.60	"	"
1-lb	"	"	"	"	75c;	8.40	"	"
2-lb.	"	"	"	"	1 10;	12.00	"	"

The ordinary square jar to seal with cork, similar to that shown in fig. 192, is very largely used for honey. They are made in four sizes. The 1 and 2 pound sizes are packed ½ gross in a package; the smaller sizes, 1 gross. Price, including corks:

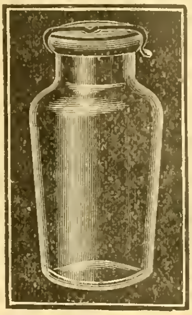
5-oz.	Square Jar	35c	per dozen;	$3.25	per gross.
8-oz.	"	45c	"	4.25	"
1-lb.	"	60c	"	5 75	"
2-lb.	"	75c	"	7.50	"

No. 25 Glass Jar.



While the No. 25 jar is more expensive than a common tin-top tumbler, it is the nicest package we know of for one pound of honey. It is clear flint glass with porcelain top and tin screw-rim and rubber ring to seal tight. We have them packed 2 doz. in a partioned case, ready to ship safely when filled with honey, without additional packing We furnish them also packed 12 dozen in a crate or a bbl. Price 60c per 10; $5.75 per crate; $6.25 per bbl; $1 20 per box of two dozen: six boxes, $6.75 No. 13, same style, holding about 14 oz., 25c per gross less than No. 25.

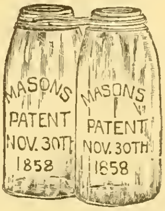
Tip-top Honey-jars.



This is a new-style jar sealed with rubber ring under rim of a glass top held securely with spring-top fastener. This fastener is applied to a great variety of bottles and jars used for different purposes. We have selected two styles among them all as being most suitable for honey. The 1 and 2 lb square jars above may be had with spring top fastening instead of cork at 75c per gross extra. The style shown adjoining, called Tip-Top, we can furnish in two sizes.

½ lb.—45c per doz ; gross, $4 50.
1 lb.—50c per doz.; gross, $5.00.

Mason Fruit-jars.



These are very largely used for canning fruit, and are often used for honey as well. As we buy them by the carload, we can make the following prices at Medina, all put up complete with porcelain-lined caps and rubbers, in cases of one dozen:

SIZE.	Doz.	6 doz.	12 doz.
Pint	$ 55	$3 15	$6 25
Quart	58	3 30	6 50
½-gallon.	75	4 35	8 50

AIKIN HONEY-BAGS.

Our supply of paper honey-bags has not yet reached us but we are expecting them now within a few days, when we shall be prepared to supply them at the prices named below.

These are made of tough paper, straw color, printed in two colors, with blank space for name and address of producer or dealer, and extra-coated with paraffine. They have been thoroughly tested, and proven to be a success for candied extracted honey. See article in our March 1st issue for illustration and full particulars. We have four sizes which we can supply at the following prices:

2-LB SIZE, 5 x 7½.		5-LB. SIZE, 7 x 10.	
100	$ 80	100	$1.20
500	3.75	500	5.50
1000	7.00	1000	10.50
5000 @	6.00	5000 @	10.00

3½-LB. SIZE, 6 x 9½.		10-LB SIZE, 10 x 10½.	
100	$1.00	100	$1.50
500	4 75	500	7.00
1000	8 75	1000	13.50
5000 @	8.25	5000 @	.13.00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00: with ten different names, $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10 00 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2.00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

THE A. I. ROOT CO., Medina, Ohio.

HO, FOR CALIFORNIA

There and Back $50 From Chicago

Tickets on sale Aug. 1st to 14th inclusive.

Account meeting of National Bee-keepers' Ass'n.

Travel via the **Santa Fe**—the "Grand Canyon Line."

Most picturesque and pleasant route.

You can also have privilege of going one way and back another. (Round trip via Portland one way is $11.00 higher.)

Final return limit, Oct. 15th, 1903.

Full information and copy of beautiful book on California, on request.

A. J. Kennedy, Pass. Agent,
Williamson Building, Cleveland, O.

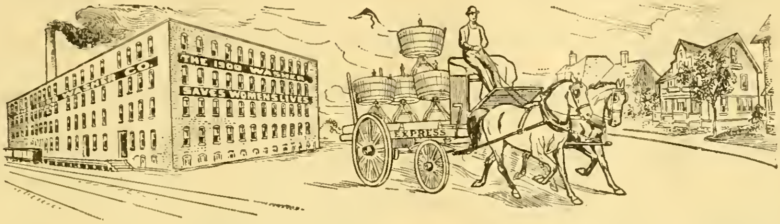
Atchison, Topeka & SANTA FE Railway System.

THE "1900" BALL-BEARING WASHER FREE

FROM FACTORY TO YOUR DOOR.

Freight Prepaid Both Ways on 30 Days' Free Trial.

No deposit or advance payment required; if not satisfactory, return at our expense, no questions asked



The "1900" BALL-BEARING Washer is the greatest time, labor, and expense saving appliance ever invented. An absolute necessity to Households, Laundries, Hotels, Boarding Houses, Public Institutions, etc. Only practical, simple, and easy running washer ever made. Hundreds of thousands now in successful use.

The " 1900" Ball-bearing Automatic Washing Machine is the simplest, easiest running, most efficient machine for washing clothes ever invented. It is a thoroughly practical labor-saving machine for washing all kinds and grades of materials, from the finest laces to the coarsest fabrics. It is constructed on scientific principles. It revolves on ball-bearings, which render the rotary movement as easy as the wheels of a high-grade bicycle. The "1900" Washer will wash any garment without boiling, without scrubbing, and without wear or tear. There is absolutely no need of using any chemicals. Soap and hot water are the only necessary things to do perfect work. **The Washing is Done While the Operator Sits by the side of the Tub, Revolving it by the Handle half way around to right and left.**

CONVINCING TESTIMONY.

$1000 will be forfeited to any one proving these letters not genuine.

Iowa Park, Tex., Feb. 16, 1903.

I started to wash with your "1900" Washer just one year ago. I am well pleased with it. It washes the clothes perfectly clean without rubbing by hand. I have washed a carpet with the machine and also a wagon sheet made of 12 oz duck, 12x14 feet. Both parties who bought through me are highly pleased with their machines. MRS. AMANDA BRUBAKER.

Nininger, Va., March 11, 1903.

The "1900" Washer that we bought of you last June acts like a charm. I can not say enough for it. It does all you say it will. I would not be without it for $50.00. I wish every housekeeper in the United States had one. We sing loudly the praises of your "1900" Washer. You are at liberty to publish this. MR AND MRS. J. C. PULLEN.

REMEMBER—You take absolutely no risk, incur no expense or obligation whatever. The washer is sent by us on 30 days' trial, freight prepaid both ways; and positively without any advance or deposit of any kind

For catalog and full particulars of this liberal and absolutely genuine offer, address

"1900" WASHER CO.,
295 N. State St., **Binghamton, N. Y.**
References: First Nat. Bank, Binghamton, N. Y.

SLUG SHOT kills currant-worms, potato-bugs, cabbage-worms, and insects on flowers; used 22 years successfully. **Sold by the Seed-dealers.** For booklet on Bugs and Blight, address

B. Hammond, - Fishkill-on-Hudson, - New York.

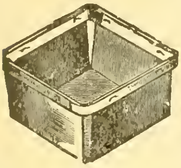
Ho! Bee-keepers! Attention!

We are again rearing the best of queens for market. We have 1000 colonies of bees, the best stock, and 10 years' experience. We have either Golden Italians or three banders. Price, 75 cts. each; $4.25 for 6, $8.00 for 12; tested, $1.50 Safe arrival and satisfaction. Give us a trial. All orders filled promptly

TEXAS BEE-KEEPERS

We keep a large stock of honey-cans of all sizes ready for prompt shipments. Get our prices. We also want all the section and bulk comb honey that we can buy, and will take some No. 1 extracted. We pay spot cash. Write us.

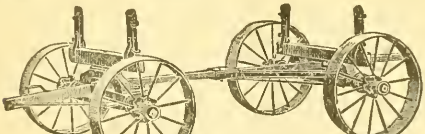
The Hyde Bee Company, Floresville, Texas.
(Successors to O. P. Hyde & Son.)



Fruit Packages of All Kinds.
—ALSO—
BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.



ELECTRIC
Handy Farm Wagons
make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.
ELECTRIC WHEEL CO., BOX 95, QUINCY, ILL.

Our Spring Sales
prove that Page Fence quality is appreciated.
Page Woven Wire Fence Co., Box S, Adrian, Michigan.

FENCE! STRONGEST MADE. Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. *Sample Free.* 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. Catalogue of poultry books free. *Poultry Advocate*, Syracuse, N.Y.

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TRADE MARK

The "Star" Ventilator.
Storm-proof, effective; for ventilating all kinds of buildings, barns, stables, and factories of all kinds. Send for illustrated booklet.
Merchant & Co., Inc.,
Philadelphia, Brooklyn,
New York, and Chicago.
M'nf'rs High-grade Bright Tin

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If you are interested in Cuba, and want the truth about it, subscribe for the
HAVANA POST,
the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

Envelopes!!
Printed to Order $1 per 1000
Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once
Howard Co., 516 Masonic Temple, Chicago, Ills.

Mr. A. I. Root's Writings
of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the
PERE MARQUETTE R. R.
For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Squab Book Free
Squabs are raised in 1 month, bring *big prices.* Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into.* Send for our **Free Book,** "How to Make Money With Squabs" and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
19 Friend St., Boston, Mass.

Wind Power

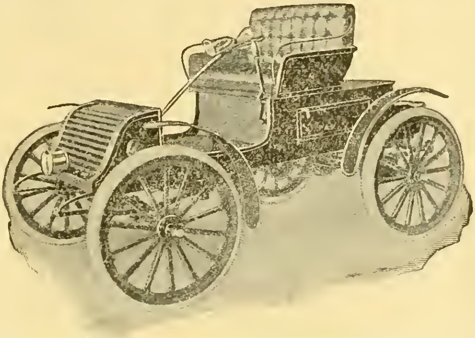
is the cheapest power known. For a farmer-bee-keeper, who has stove-wood to cut, water to pump, and feed to grind for stock, corn to shell, and bee-hives to make, nothing can equal a well-arranged power wind-mill. *The Bee-keepers' Review* for June illustrates a wind-mill thus arranged, and a bee-keeper who has such a mill, and uses it for all the purposes mentioned, contributes an article, giving cost, advantages, and drawbacks, together with several other interesting items on the subject. He has had his mill six years, and can speak from experience.

Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may be applied on any subscription sent in within a year. A coupon will be sent entitling the holder to the *Review* one year for only 90 cents.

W. Z. HUTCHINSON, Flint, Mich.

$750 HYDRO CARBON

Capacity: 100-mile Gasoline-tank.

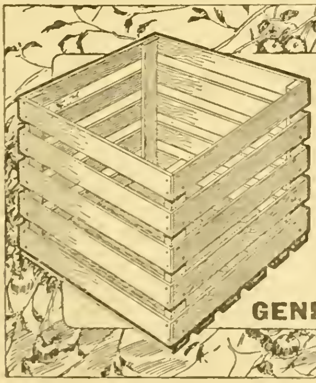


Capacity: 300-mile Water-tank.

Weight 940 lbs.; seven-horse power actual. Will run at any speed up to 25 miles per hour, and climb any grade up to twenty per cent. For catalog, address

Friedman Automobile Co.,

3 East Van Buren St., Dept. B, Chicago, Illinois.



VENTILATED BUSHEL CRATES

These crates are the most convenient things that can be used on the farm. Apples, potatoes and other fruits and vegetables can be gathered, stored and taken to market in them without rehandling. They allow air to circulate freely through them. Our crates cost 8 cents each ready to nail together. Made of best material and with decent care will last a lifetime. Can be "nested" together to store away. Our illustrated booklet No. 12 telling all about them free.

GENEVA COOPERAGE CO., GENEVA, O.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1.00 each; $5.00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. ORDER "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Readers OF Gleanings

desiring to know the results of my forty years' experience in rearing queen-bees, and to learn of my new process of producing queens, can do so by purchasing a copy of IMPROVED QUEEN-REARING. The book and a valuable Adel breeder sent by mail for $2. Prospectus and catalog ready. *Adel bees have a world-wide reputation.*

Henry Alley, Wenham, Mass.

DURING SEPTEMBER, 1901,

the United States Department of Agriculture imported a lot of queens from the Province of Bergamo, Italy, one of which was sent to me to be tested For prolificness and industry she and her offspring are second to none, and I am now prepared to fill orders promptly with her daughters or the best golden queens at $1.00 each or $9 00 per dozen. M. O. office, Warrenton.

W. H. Pridgen, Creek, Warren Co., N. C.

100 = Mounted = Queen-cells

and one sample of the Stanley Cell protector or Introducing-cage, for 70 cents postpaid.

Arthur Stanley, Dixon, Illinois.

ITALIAN BEES FOR SALE!

Full colonies, $4.00; three frames, with queen, $2.25; two frames with queen, $2 00; one frame, $1.50; queen, $1.00. **Mrs. A. A. Simpson, Swarts, Pa.**

Pure Italian Queens in State of Washington!

Untested, $1.00; tested, $1.50; after June, 25c less for either. Queens are reared by the swarming process. Mismating will be rare if ever. I keep only pure stock. **Robt. Mirring, Dryad, Lewis Co., Wash.**

The World's Record for large yields of honey, my bees have stood the test for 30 years Italian queen mothers a specialty. If you want to see the best and most novel queen-cage ever invented for introducing safely. Send for a queen and you will get one. Circular free.

F. Boomhower, Gallupville, N. Y.

Bred for Work Terrace queens have given best of satisfaction; bred from selected stock; best of workers; very gentle, and fine color. Untested, 75c each: six, $4 25; twelve, $8.00. Tested, $1.00; six, $5.00; dozen, $9.50.

Harold Hornor, Terrace Apiaries, Mt. Holly, N. J.

HONEY-QUEENS, GOLDEN ITALIAN

are hustlers and their bees are gentle and can not be excelled gathering honey. Untested, 90c; tested, $1.00; breeder extra fine, $3.00, none better.

H. C. FRIESCH, JR., Dyer, Ark.

RED-CLOVER ITALIAN QUEENS, guaranteed to work on red clover; bred for business, in full colonies; honey gathering and wintering qualities are prime object. Untested, $1 00; tested, $2.00 to $1.50. After July 1, untested, 75c; tested, $1.50 to $3.50. Send for circular list. I. F. MILLER, Knox Dale, Pa.

Carniolans and Italians.

Choice Queens a Specialty

Having added extensively to our queen-rearing plants in the North and the South we can furnish any number of queens on short notice.

Carniolans. Very prolific, hardy, gentlest bees known. Great comb builders. Sealed combs of a snowy whiteness. A worker on red clover.

Italians. Gentle, prolific, swarm very little, fine workers, and a red-clover strain.

The Carniolan-Italian Cross. A cross giving the combined qualities of each race, are hustling workers, the coming bee for comb honey.

One untested queen, $1; 6 for $5; 12 for $9. Tested, $1 50. Best breeder, $3. Best imported breeder, $5. For full colonies, one or two frame nuclei, large orders for queens, send for descriptive price list. Orders booked now will be filled when desired.

F. A. Lockhart & Co., Caldwell, N. Y.

For 1903 | You Require
I Supply **PERFECT QUEENS**

Norristown, Pa., March 14, 1903.

Dear Sir.—Find inclosed $1.00 for one untested Golden queen. . . . I wish you would send a queen just like I bought of you last spring. It is one of the best and prettiest queens I ever had. At present my apiary numbers 35 colonies. Yours truly,

HENRY A. MARKLEY.

These queens are giving general satisfaction. Try some. Address

GEO. J. VANDE VORD, Daytona, Fla.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

HERE'S THE PLACE

FOR GOOD QUEENS PROMPTLY.

We are too busy raising queens to write big ads. Our customers like our queens, and we think you would too. We rear by best methods from best stock, and guarantee good queens. Our prices for select, $1.00; six, as they run, $4.50; twelve, $8.00. Free circular.

J. B. CASE, Port Orange, Fla.

Do You Know that you could come nearer getting what you want, and when you want it, from the New Century Queen-Rearing Co. (John W Pharr & C. B. Bankston), than anywhere in the United States? Untested, 50c.; tested, 3 and 5 band, 75c; all other races, $1.00. Send for circular. **Berclair, Goliad Co., Texas.**

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence, ; Doniphan, Missouri.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

FINE QUEENS FROM THE BLACK HILL APIARIES Golden and Long-tongue. Write for price list. Reference, G. F. Davidson & Son.

Carver & Mathis, Props., Verdi, Texas.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin=the=Queen=Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis" Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarante safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa, writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens After July First.

	1	6	12
Selected	$ 75	$4 00	$7 00
Tested	1 00	5 00	9 00
Select Tested	1 50	8 00	
Extra Selected Tested—the best that money can buy	3 00		
Two-frame Nuclei, no Queen	2 00		

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty: we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin=the=Queen=Breeder, Parkertown,
OHIO.

Strong Testimony in Favor of

Moore's Strain of Italians

Prof. Frank Benton, of Washington, D. C., whose name is familiar to all progressive apiarists, says:

"I have several times, in the course of correspondence, and in conversing with bee keepers, had occasion to answer the question: 'Where can the best Italians be got?' It is, perhaps, not an easy thing to say, with certainty, but at least I have felt I might be able to tell where GOOD ones could be obtained. A number have been referred to you, for, although I have not tested your stock personally, I thought I knew pretty well, from general reputation, its character. A bee-keeper near here—Geo. A. Lanphear, of Vienna, Va.—who got some queens of you on my recommendation is so well pleased with them—in fact, gives your bees such a good recommendation to me for gentleness and working qualities, particularly their working on red clover, that I thought I would like to try some myself."

I was not aware that Prof. Benton was recommending my stock until I received the above letter. Such testimony as this certainly has great weight, and shows why my business has grown so fast.

Prices for daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75c each; six, $4 00; dozen, $7.50. Select untested, $1.00 each; six, $5 00; dozen, $9.00. Safe arrival and satisfaction guaranteed Send for descriptive circular.

My 23 100 breeder was awarded a $25.00 prize by The A. I. Root Co. for producing bees showing the longest tongue-reach on record. Competition was open to the whole world.

I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5 banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity, from 5 to 35 miles apart, February and March, $1.00 each, or $9 00 per dozen. All other months, 75c each, $4 25 for six, or $8.00 per dozen. Tested queens of either race, from $1.50 to $3.00 each. Breeders from $3.50 to $10.00 each. 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**
P. O. Box 79, Beeville, Bee County, Texas.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
J. T. CALVERT, Bus. Mgr.
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TERMS. $1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, *in advance;* or two copies to one address, $1.50; three copies, $2.00; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

SPECIAL NOTICE
Special Notices
By Our Business Manager

BUCKWHEAT.

Our notice in last issue has brought to us several lots of Japanese buckwheat, aggregating over twenty bushels; and while this lasts we will furnish it at the following prices: Trial packet, 4 oz., by mail, 5 cents; 1 lb.. postpaid, 15 cts. By freight or express, at your expense, peck, 40 cents; ½ bushel, 70 cents; one bushel, $1.35; 2 bushels, $2.50; ten bushels or more, $1.15 per bushel, bags included.

BUSINESS.

Our orders are in good condition except for sections. We are still over a week behind on section orders, although we are making about 600,000 a week. Our lack of lumber in the winter and early spring put us behind so we have not been able yet to catch up. Most of our agencies are supplied with a fairly complete assortment. We still have a surplus over orders of No. 2 in 4¼x4¼x1½ plain; 3⅝x5x1½ plain; 4x5x1⅜ plain; 4¼x4¼x1$\frac{15}{16}$ and 2-inch four beeway. These latter can be reduced to 1⅞ in width if there are those who prefer to use them rather than wait for what they would rather have. Orders for other goods are up, and being filled promptly. Some, which include sections, are, of course, delayed a few days for these. In spite of unfavorable weather the demand for sections indicates a good honey flow, and frequent reports from different sections confirm this opinion.

BEESWAX.

Until further notice we will pay 28 cts. cash, 30 in trade, for average wax delivered here. From one to two cents extra for choice yellow wax. We find it necessary to give again our oft-repeated injunction to be sure to put your name and address in or on your shipment so that we may be able to identify it when it reaches us. Write us also, stating how many packages and what kind, whether box, barrel, or sack, and the gross weight, weight of package or tare, and the net weight as you make it. We sometimes get as high as ten or a dozen shipments in a day; and unless you are careful you not only make us a lot of trouble but may have your own settlement delayed. We just recently found the owner of a shipment received last August. The shipment came in without any name or notice or shipping-receipt; and instead of writing to us to inquire about it, giving particulars, the shipper, after waiting several months, made claim on the railroad for the wax. The claim papers showed delivery to us on a certain date last August, and our record tallied with the unidentified shipment.

SLATE TABLETS.

We are again supplied with slate tablets such as we used to catalog for making hives in queen rearing. We have tried for some time to secure these at a reasonable price and have finally succeeded. One concern wanted 5 cents each on an order for 5000, but we bought them so we can offer them for sale at 2 cents each. In lots of 10 or more $1.75 per 100; 500 for $7.50. Our stock has not arrived at this writing, but we expect it here within a few days.

"Tested Queens."

No! not for color, but for honey. Will sell queens from colonies that have stored a good surplus from palmetto; some have 3 10-frame supers full to date. Old enough to show what they will do, but not aged. Price for queen and bee brush, $1 00.

SARAH A. SMITH,
Grant, Fla.

CARTONS FOR HONEY Wanted to introduce the best, most practical, lowest-price carton for honey, all things considered; costs nothing. We have wholesaled honey in this city for 30 years. We have seen no honey-carton equal to this. Send us five two-cent stamps, and we will send you sample, together with explanation, and some practical suggestions regarding marketing honey to best advantage; also live poultry. We originated and introduced the new popular one-pound section.
Established in 1870. H. R. WRIGHT.
Wholesale commission. Albany, N. Y.

Root's Goods in Central Michigan!

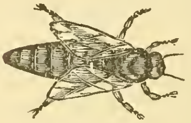
Sold at their prices. Present given with each order amounting to $2 or over. List sent free.

W. D. Soper, Rural Route No. 3, Jackson Michigan.

The A. I. Root's Co's Goods in Oklahoma.

Save freight by buying of F. W. VAN DE MARK, RIPLEY, O. T.
Catalog free for postal.

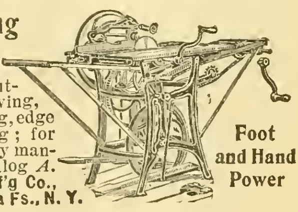
Red Clover and Three and Five-Banded Queens.



Untested, 65 cts; 2 for $1.00. Fine tested queens, $1.00 each. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Plenty of queens, and go by return mail. Fifty and one hundred, special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENN.

Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A.*
The Seneca Falls M'f'g Co., 44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

THE NORTH-WESTERN LINE
C.&N.W.R'Y

$30
Colorado
And Return.

First class to Denver, Colorado Springs, and Pueblo from Chicago, daily, throughout the summer, good returning October 31. The

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fast daily train, one night to Denver from Chicago and the central States (only two nights enroute from the Atlantic seaboard), leaves Chicago daily 6:30 P. M.

A second daily train leaves Chicago 11:30 P. M. Personally conducted excursions in tourist sleeping-cars.

For sleeping-car reservations, descriptive pamphlet, "Colorado Illustrated," and full particulars, address

A. F. CLEVELAND, 234 Superior St., Cleveland, O.

S. D. BUELL

Manufactures bee-hives, and is agent for The A. I. Root Co.'s goods, which are sold at factory prices. Catalog sent free. Bees for sale. Beeswax wanted.

Union City, Mich.

POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
Inland Poultry Journal, Indianapolis, Ind.

FOR SALE—Fine, carefully reared queens, from a hardy, prolific, honey-gathering strain of 3-banded Italians; can also furnish queens from Doolittle Golden strain, if preferred: untested, 65 cents; tested, $1.00; selected breeders, $2.50. EARL Y. SAFFORD,
Salem, N. Y.

FOR SALE.—100 colonies Leather-colored Italian bees. A tested queen in each colony. In 8 frame Dovetail hives. Price after July 15 and during Aug., $4.00 each. In lots of 10, $3.50 each. F. A. GRAY,
Redwood Falls, Minn.

TEXAS QUEENS FROM LONE STAR APIARIES. We are now ready to furnish you queens from the best stock of any race. These queens are equaled by few and inferior to none. Write for price list
G. F. Davidson & Son, Props., Fairview, Texas.

FOR SALE.—A few Queens, whose bees are extra yellow, such as most breeders ask $5.00 for. Our price, $3.00 each.
F. W. VAN DE MARK, Ripley, Okla.

A dozen young mismated queens at $3.00 or 30 cents each. B. F. AVERILL, Howardsville, Va.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell, a Barnes foot-power saw.
H. H. JEPSON, Medford, Mass.

WANTED.—To exchange for choice honey, or cash, 60-lb. new cans, used for honey one month, as good as the day they were made.
J. A. BUCHANAN, Holliday's Cove, W. Va.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—To sell, second-hand 60-pound cans, as good as new. Correspondence solicited.
LEWIS C. & A. G. WOODMAN,
Grand Rapids, Mich.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange copy of *New York Herald*, April 15, 1865, in good condition, containing detailed particulars of President Lincoln's assassination. Best offer gets it. ELIAS FOX, Hillsboro, Wis.

WANTED.—To sell, for 65 cents each, choice untested queens, reared from selected mothers, the Carniolan-Italian cross—the coming bee for comb honey? A trial order will convince you. Satisfaction guaranteed. L. H. PERRY, Cigarville, N. Y.

WANTED.—Agents to sell and attach automatic cut-offs to grinding-mills, which automatically stop them when hopper becomes empty. Especially adapted to Aermotor windmills. Write for particulars.
B. STRITTMATTER, Bradley Junction, Pa.

WANTED.—To sell, 500 Hoffman brood-frames, 10 lbs. light brood foundation, 10 lbs. light-brood section foundation, 1000 sections, 4¼ plain; 50 honey-boards, 8-frames wood-bound zinc; 300 section-holders 100 separators; cleated nails for frames, etc., included. All new. One Cowan two-frame extractor, second-hand. Will sell cheap for cash. G. F. TUBBS,
Annincreek, Pa.

WANTED.—To furnish you select long tongued Italian queens at the following prices: Untested $1.00 each, $10.00 per dozen. Tested, $1.25 each, $12.00 per dozen. Four years' experience in rearing queens for the trade. Safe arrival and reasonable satisfaction guaranteed. CHAS M. DARROW,
Route No. 3, Nevada, Mo.

Reference, by special permission, the Nevada Banking Co., of this city.

WANTED.—To sell for cash at Oakville, Appomattox Co., Va., the following property: One lot of five acres with a large storehouse and dwelling combined, consisting of 6 rooms; one nice small dwelling of 3 rooms; one blacksmith and wheelwright shop with complete set of tools; one large shedded barn, covering an area of 2000 square feet; a fine young orchard of 100 improved bearing trees; 11 stands of bees; a splendid location for general store and apiary. White clover and sourwood grow abundantly, and nearest bee-keeper of note 25 miles. This property is in easy reach of 10 churches; postoffice and schools at the place; has fine well of water, and handsome shade-trees. Will also sell annex of 6 acres of wood land. Price of whole outfit, $1300. Apply to
J. P. & R. D. HUGHES, Oakville, Va.

WANTED.—To sell S. W. ¼ of S. E. ¼ sec. 26 range 26, Crystal Lake Tp., Benzie Co., Mich.; 40 acres just outside corporation of Frankfort; a nearly finished cottage of six rooms, a small stable, 25 bearing apple-trees, a few peach-trees. From front porch can be seen a delightful view of the little city of Frankfort, Lake Michigan, harbor steamers, etc. Unexcelled as a summer home or a fruit-farm. Only a few hours from Toledo, Detroit, Chicago, Minneapolis, and other cities. Write Gen. Pass. Agent of Toledo & Ann Arbor R. R., Toledo, Ohio, for pamphlet describing Frankfort. Cheap at $2200; if bought soon can be secured at $1400. Also for sale 160 acres, 15 miles east of Frankfort; only $2.50 per acre. 25 acres ready for the plow. Write C. L. Liukletter, Agent, Frankfort, Mich., or W. A. HOBBS, Owner, Traer, Iowa.

PAGE & LYON,
New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .
BEE-KEEPERS'
SUPPLIES. . . .

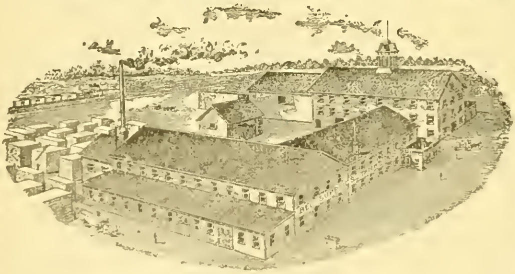
Send for Our Free New Illustrated
Catalog and Price List. . . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



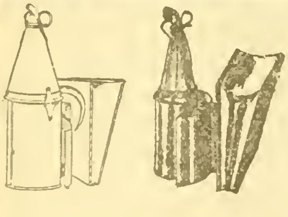
Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE-SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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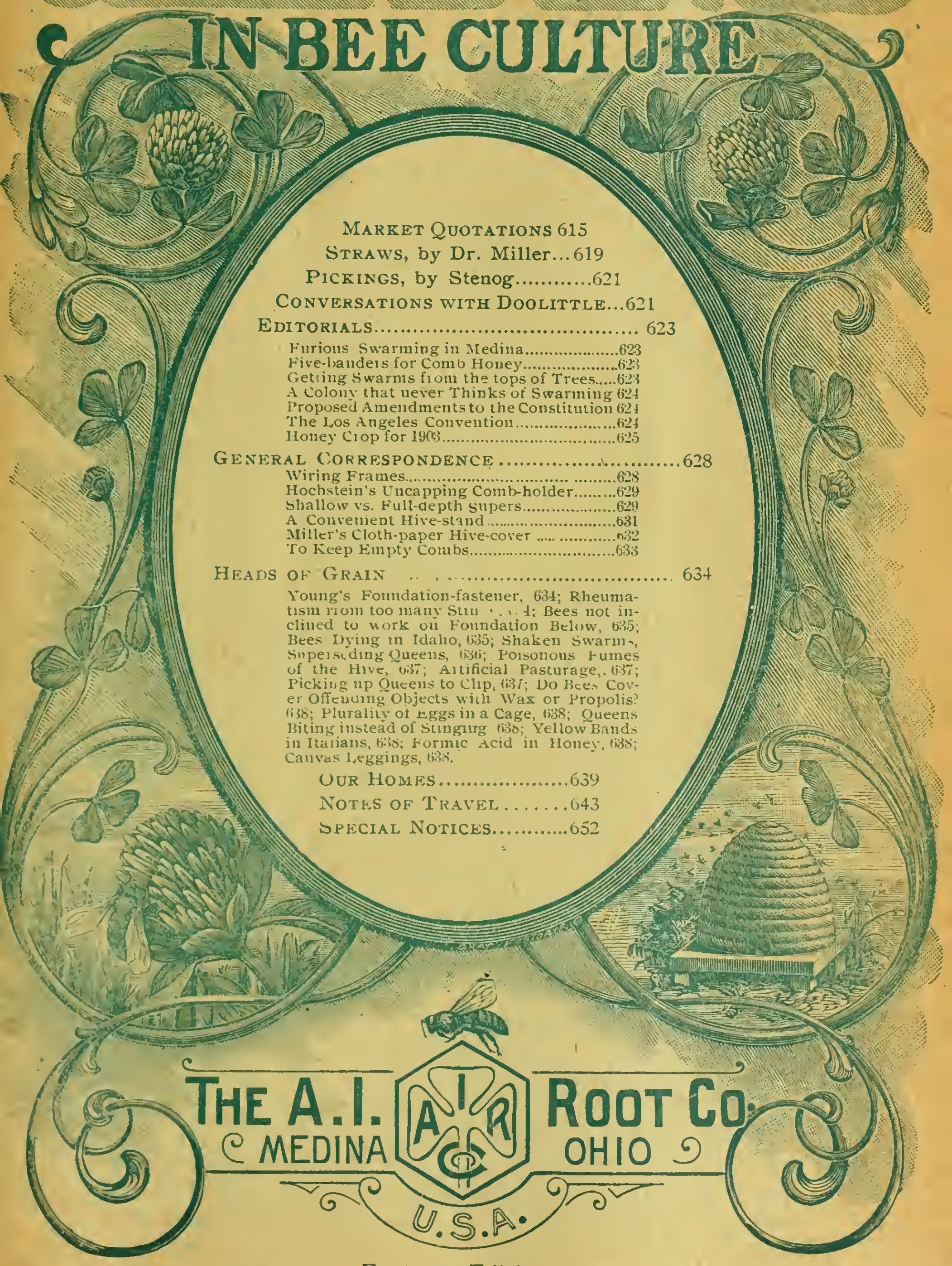
GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice at Medina, Ohio, as Second-class Matter.

QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued, or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

JUNE AND JULY PRICES:

Tested, each	$1 25
Select tested, each	1 50
Warranted purely mated, each	90
Same, per half dozen	5 00
Same, per dozen	9 00
Untested, each	75
Same, per half dozen	4 25
Same, per dozen	8 00

We have also a full line of bee-keepers' supplies including **The A. I. Root Company's Goods, Root's Sections and Weed's Foundation a Specialty.** Send for our 32-page illustrated catalog.

W. W. Cary & Son,

Lyonsville, Mass.

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is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-Keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

E. GRAINGER & CO.

12 Yonge Street Arcade.

Northeastern and New England

BEE = KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Me.

Mgr. The A. I. Root Co's. N. E. Agency.

WANTED

COMB and EXTRACTED

HONEY

If You have Comb Honey to Sell,

Write us Answering these Questions.

Quantity..............................
Gathered from ....
Put up in ....sections
Price at which you will ship.

If You have Ext'd Honey to Sell,

Quantity..............................
Gathered from ....
How put up..........................
Price at which you will sell.
Send sample ....

We Want the BEST Grades in ANY Quantity.

THE A. I. ROOT CO.,

MEDINA, OHIO.

—THE—

DANZ. HIVE

The comb-honey hive is one of our specialties. Send for booklet telling about it.

We are the jobbing agents for The A. I. Root Company in Michigan, and want the name and address of every bee-keeper in the State, whether you have one swarm or 500.

M. H. Hunt & Son

Bell Branch, Mich.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Buffalo.—There is no more demand for old white comb honey. As soon as I can get some nice new, can sell at a very good price, Some call for strained clover or basswood honey.

Fancy white comb, *old*, 14 @15c ; *new*, 17@18;
A No. 1 " " " 13½@14 ; " 16@17;
No. 1 " " " 13 @13½; " 15@16;
No. 2 " " " 12 @12½; " 14@15;
No. 3 " " " 11 @12 ; " 12@13;
No. 1 dark " " 11 @12 ;
No. 2 " " " 10 @11.

White clover or basswood extracted, 7@8c: amber, 6@6½; dark, 5@5½.

W. C. Townsend,
July 9. 178, 180 Perry St., Buffalo, N. Y.

Philadelphia. There is almost nothing doing in the honey business at the present time, very few sales having been made in the last two weeks in Philadelphia—not enough to fix the price, and no new comb honey as yet. Southern honey is being offered quite freely ,a large crop having been produced in Florida. 5@5½ is the ruling price paid by dealers here to sell it again. Beeswax in good demand, and for bright yellow 30c paid on arrival. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
July 7. 10 Vine St., Philadelphia, Pa.

New York.—Some new crop comb honey now arriving from Florida and the South, and fancy stock in fair demand at 14c per lb., and 12@13 for No. 1, with no demand whatever for dark grades. The market on extracted honey is in a very unsettled condition, with prices ranging from 5@5½ for light amber, 5½@6½ for white, and the common Southern from 50@55 per gal. Beeswax steady at from 30@31.

Hildreth & Segelken,
July 8. 265-7 Greenwich St., New York City.

Milwaukee.—The honey market is without any very interesting features; only old on hand and mostly extracted of either amber or white in cans, barrels, or kegs. Comb all inferior in quality, and quotations are almost nominal Prospects seem favorable for a new crop of honey, which will be fine, judging from the wonderful crop of clover. We quote fancy one pound sections at 16@18; A No. 1, one-pound sections 15@16; old of any kind 8@10@15; extracted in barrels, kegs, or cans white, 8@8½ amber 7@8. Beeswax 28@30.

A. V. Bishop & Co.,
June 29. 119 Buffalo St , Milwaukee, Wis.

Toledo.—No new honey has put in an appearance as yet, but would bring as follows: Fancy white, 18c; No. 1, 17; No. 2, 16. Extracted in bbls , white clover, 6½; in cans, 8; amber, bbls., 5½; cans 7. Beeswax, 28@30.

Griggs Brothers.
July 8. 214 Jackson Ave., Toledo, O.

Albany.—Honey market very quiet now. It is between seasons here now; no stock and little demand. Some light comb would sell at 15c if here; extracted quiet at 6@7. Beeswax 30@32.

MacDougall & Co.
July 1. 375 Broadway, Albany, N. Y.

San Francisco.—New comb, per lb., white, 14c; light amber, 13½. Extracted, water-white, 6½; light-amber, 6; dark amber, nominal. Beeswax, 32

I don't buy honey Please don't write me, as it merely wastes your time and mine.

July 1. Ernest B. Schaeffle.

Chicago.—At present there is little call for comb honey; some new is offered, and for fancy 14@15 per pound is asked. Extracted sells at 6@6½ for best white; amber grades 5@6 depending upon flavor, body, and package. Beeswax 30c.

R. A. Burnett & Co.,
July 8. 199 South Water St., Chicago, Ill.

Cincinnati.—We have reached the time when there are no settled prices in the honey market. Everybody is waiting to learn how the new crop will turn out, therefore we will sell or ask the old price. Fancy water-white brings 15@16. Extracted amber, in barrels, 5¼@5½; in cans, 6@6½; white clover, 8@8½. Beeswax, 30.

C. H. W. Weber,
July 7. 2146-8 Central Ave., Cincinnati, Ohio.

Kansas City.—No comb honey in this market. New white comb would sell for $3.50@$3.75 for 24-section cases; amber, $3.25@$3.50. There is considerable extracted honey on the market, with scarcely any demand. Price nominal at 5½@6½. Beeswax in demand at 25@30 per pound.

C. C. Clemons & Co.,
June 30. 306 Grand Ave., Kansas City, Mo.

For Sale.—Fancy comb and extracted honey; extracted in 60 lb. cans Prices quoted on application.

William Morris, Las Animas, Col.

For Sale.—10,000 lbs. fancy white-clover honey, mostly comb, in 4¼ sections Extracted in 60-lb. cans.

John Handel & Son, Savanna, Ill.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

Hildreth & Segelken.
265-267 Greenwich St., New York.

Wanted.—Beeswax; highest market price paid. Write for price list.

Bach, Becker & Co., Chicago, Ill.

Wanted—Comb and extracted honey. State price, kind, and quantity.

R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted—Strictly fancy white comb honey for exhibition purposes. State price.

Walter S. Pouder, Indianapolis, Ind.

Wanted -To buy direct from bee-keepers unextracted, dark-color honey put up in large barrels. Car load lots Pay spot cash. Write if have or when have honey. State price

T. S Leymel,
411 Northampton St., Wilkesbarre, Pa.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale—Several barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.

Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

Gleason & Lansing,
ESTABLISHED 1888.
150 Michigan St., Buffalo, N. Y.

Jobbers of Comb and Extracted Honey.

We have a large jobbing trade in comb honey, and can use any-sized shipments up to car lots. We want 5000 cases as early shipment as possible this season and can use all grades. Will buy delivered in Buffalo or handle for your account. . . . .

Correspond with us before placing your output this season.

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Manufacturers & Traders National Bank, Buffalo, N. Y., any Express Co., Dun or Bradstreet Agencies, Buffalo, N. Y.

The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for w catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, New York.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

I. J. Stringham, New York City

105 Park Place.

OUR 1903 CATALOG is yours for the asking. The supplies listed in it are practical and up-to-date. We furnish every thing a bee-keeper uses, and will not be undersold. Silk-faced veil, 40 cts.; three for $1.05, postpaid. Full colonies of Italian bees in hive, $7.50; nucleus colonies, $3.50; tested queens, $1.00; untested, 75 cts. Apiaries, Glen Cove, Long Island.

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Prompt Shipments.

If you are in a hurry for supplies send us your order and we will surprise you with our promptness. All goods shipped within 10 hours after receiving the order. Over a million sections and two tons of foundation now on hand. Hundreds of hives, and all other supplies **READY FOR IMMEDIATE SHIPMENT.**

Lewis's and Dadant's Goods.

Lewis C. & A. G. Woodman, Grand Rapids, Mich.

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is a new department in the old **American Bee Journal,** conducted by **Miss Emma Wilson,** of Marengo, Ill., a sister-in-law of Dr. C. C. Miller, author of the popular "Forty Years Among the Bees." ❧ ❧ The women readers of *Gleanings* (as well as the men-folks) should have the **American Bee Journal,** and read what Miss Wilson has to say each week. ❧ ❧ Sample copy free, or the **Bee Journal** one year, and Dr. Miller's book—both for only $1.75. Book alone, $1.00. Address

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144-6 East Erie St., Chicago, Illinois.

"Root's Goods at Root's Prices."

BEE-SUPPLIES

A large and complete stock of every thing necessary for the apiary. Send a list of goods wanted, at once, and get our

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1004 East Washington Street.

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Stray Straws

By Dr. C. C. Miller.

Mr. Editor, I wish you'd ask Mr. Phillips to remove the queen from a colony, then tell us the age of the larvæ he finds in the queen-cells started. [Mr. Phillips is hereby requested to carry out Dr. Miller's instructions. I suppose you mean our head apiarist, and not Mr. Phillips the scientist of the University of Pennsylvania.—Ed.]

Noting the case mentioned by G. A. Bostwick, p. 596, I may say that I've had cases where the bees were very slow about starting cells, and I *think* that the amount of *young* brood present has something to do with it. I've sometimes wondered whether preparation of cells might not be postponed indefinitely by the constant addition of eggs and young brood.

I smiled to myself when I read A. I. Root's desire to be free from notions, p. 600. Why, bless your heart, friend Root, your fresh notions from time to time, and the enthusiasm with which you talk about them, do us a whole lot of good. Don't take the notion that you oughtn't to have notions. Some day I expect you to be free from notions, but it will be when you're dead, very dead.

The new thing in Mrs. Bulkley's plan, page 552, is the stopping of a swarm with smoke. If that is thoroughly reliable, I'm not sure but it is less work to watch for the swarms and smoke them back than it is to keep going through the colonies to look for cells. Yes, I'm sure it's less work to smoke a swarm back than to go through the colony for cells, and each colony gives only one job of smoking, whereas it may give more than one job of cell-hunting.

Referring to the note of H. O. Vassmer, p. 595, I may say that, according to voluminous literature sent me by Schering & Glatz, New York, the word "formalin" is patented in this and other countries, and applies only to the preparation made by the Schering Chemical Works. It is a guaranteed 40-per-cent preparation, used not only in liquid form, but in the form of pastils; indeed, they seem to recommend pastils as the best form for ordinary disinfecting, and claim that they are stable and reliable.

There has been some difference of opinion as to whether a member of a honey exchange has the privilege of selling his honey outside the association. The secretary of the California National Honey-producers' Association clears up this point in the *Rocky Mountain Bee Journal*, so far as that association is concerned. The members "are not under any obligation to deal with the association unless they choose," only they must not sell for less than the association prices.

I've known for a long time that bees would carry up bits of dark comb from the brood-combs to darken the sections unless there is quite a distance between the two; I have now learned that they carry them down as well. I shook a swarm from No. 61, then put the brood over the sections. The queen stayed in the lower story, and worked there all right, although no excluder was used; but, so far as I could see, every section in the upper super was being built out with darkened wax.

I've just been out to the home apiary this morning, July 7, and I found 2 colonies with 5 supers, 18 with 4, 21 with 3, 11 with 2, and 2 with 1, while most of them have had taken from them one or two finished supers. That averages a little more than 3 supers to a colony, and they're all filled with bees. Now, if I should limit to two supers those that have 4 or 5, what would those bees be doing that are now crowded in the other two or three supers? [Good for you, doctor. May you be blessed with five supers per colony clear through.—Ed.]

Yes, Mr. Editor, you're right; I meant "above" where I said "below," page 580. I'm ashamed of such blundering work. But there's a little excuse just now when the bees are rushing me so that I must get up at 4 o'clock in the morning if I get any time to write. Say, if I should quit working with bees and reading so much about them, don't you believe I could furnish you a better quality of straw? I'd then have time to polish up each straw nicely, and not put "below" for "above" nor "above" for "below." [No apology is needed, doctor, only it does me good to "rub it into you" as a sweet revenge for your having pointed out my misplaced words. The quality of your *straw* is all right. If your strength will permit, keep on as you have been doing, and hereafter I will change the *belows* to *aboves* when they get misplaced, and say nothing about it.—ED.]

I'M DOING nowadays what I've not been able to do for several years. When a super of sections is ready to come off the hive, I just take it off without doing any thing about driving the bees out, cover up the hive, then set the super on top and let the bees take their time to march down the side of the hive to the entrance. Not the slightest hint of robbing if it stands there all day. [In other words, that means you are having a remarkable honey-flow. Some time last week, when our basswood was at the height of its run, we took some broken combs, or combs that had been built to the cover, containing honey, and set them on a board temporarily until we could take care of them. It was not long before a few robbers were hovering over them, notwithstanding the bees were dropping in at the entrance in a way that seemed as if they could not be working stronger. It is possible that the very bad weather we had been having for three weeks prior had got some bees to smelling around to see what they could steal; and these same bees, doubtless, when they ran across some honey in these exposed combs, were ready to help themselves rather than go to the fields. Heretofore I have always thought it was safe to expose honey in the height of the honey-flow. I now conclude that sometimes you can not and sometimes you can.—ED.]

A BARE WRIST, when working with bees, is more free from stings, I think, than one with the ordinary shirtsleeves whose cuff will allow the entrance of the hand. If the wristband is such that the button is sewed on, I have it sewed on far enough back so as to make the wristband a snug fit. If a detached cuff-button is used, I take my pocket-knife and punch a fresh hole further back in the part of the cuff that is under. [Yes, you are right. An open sleeve does invite the bees to sting more than one that is closed tightly around the wrist. The average shirt-maker seems to think, however, that it is necessary to have a loose band. I have been using lately, with considerable satisfaction, some oversleeves made of dark-colored material, that fit tightly around the wrist, and reach up beyond the elbow, at which point it is gathered with a rubber cord. I also like gloves with good long sleeves reaching up to and beyond the elbow, with the fingers cut off when the weather is not too hot; and I like them also when I have to tackle a colony of cross yellow five-banded bees. And, by the by, these bees are much crosser than the average of leather-colored stock direct from imported queens; but I am not sure but they go into comb-honey supers a little more readily than the regulation Italians direct from Italy. See editorials.—ED.]

Later.—Since writing the foregoing our shop-girls have, at my suggestion, gotten out a new pattern of glove and sleeve that I like better than any thing I have seen yet. It is simply a long-sleeved glove without any fingers or thumb; that is, the *whole* of the fingers and thumb stick through holes close to the palm of the hand.—ED.]

SPEAKING of having the empty super under or over, you say, Mr. Editor, p. 580, "In the one case the bees are induced to finish up the work already begun; in the other case they begin another job before finishing the first, with the possibility that neither will be finished as it should." That's just it; in the first case a lot of bees must stand looking on while the job is being finished, while in the second case they are all at work. Even if you object to that statement, you must admit that, when induced to commence work sooner in the added super, there is just so much more ground for the bees to be at work on. The argument in favor of foundation because it gives at once a larger field on which the bees can be working applies with equal force to placing the supers in such position as to get the bees working on a larger surface as soon as possible. "The possibility that neither will be finished as it should" is a very remote possibility at the beginning of a season when I have every reason to expect from the colony 3, 4, 5, or more finished supers. All the same, I'm doing more at putting empty supers on top than I ever did before; and I heartily thank O. L. Hershiser for stirring us up about it. [I do not really know on which side of the argument I am. The events of the past week have shoved me one day on this side and the next on the other. But I am glad that Mr. Hershiser has called attention to this matter, for the fraternity at large had begun to assume that it was good practice always to put the empty super *under* the partly filled one, at the beginning of the honey-flow at least. But (would you believe it?) in some cases colonies that were treated on the tiering-under plan, new super put *under* the one partly filled, commenced work in the new supers, and actually abandoned the upper supers, or nearly so, where the work was already begun. I was astounded — never saw the like of it before. Then I began to feel that, *if* I had followed Hershiser's plan of putting the empty super *over*, the bees would have continued their work in the lower super, and gradually worked into the super above.—ED.]

Pickings from Our Neighbor's Fields
By
"Stenog."

BEE-KEEPERS' REVIEW.

The July issue is a fine one in every way. The frontispiece shows a half tone of Blanchard's Music Hall, Los Angeles, where the National convention will be held. It is a magnificent place, and an audience of 500 would be scarcely perceptible in it. A piano on the stage seems to be awaiting Dr. Miller. It is surrounded by tropical fruits of various kinds. Those who can attend this convention will be highly favored.

* * *

R. L. Taylor contributes an interesting article on what to do at the end of the season — how to equalize the sections as the harvest nears the end; how to arrange unfinished sections that are to go back on the hives. In regard to feeding back to get unfinished sections filled out, Mr. T. says:

> A few years ago there was much said about feeding back honey to secure the completion of unfinished sections; but the idea seems (rightly, I think) to have gone out of fashion. Honey thus produced is not of very good appearance. It begins to candy in the fall; soon becomes solid, and is of a decidedly poor flavor. I now think it is preferable to so manage that the number of unfinished sections is so small that there is no occasion to resort to that method of disposing of them.

H. R. Boardman writes on the same subject, and says substantially what Mr. Taylor does about feeding back. (See Doolittle, next column.)

Mr. Wm. McEvoy tells how to treat foul brood after the honey harvest. This is a star article, written at first as a private letter to Mr. Hutchinson, who is now foul-brood inspector of Michigan.

* * *

AMERICAN BEE-JOURNAL.

From a very modest beginning, Miss Emma Wilson has made her department, "Our Bee-keeping Sisters," one of the best in the Old Reliable; in fact, I think it is the most so, although friend Hasty is a close second when he does write. Miss Wilson's scholars ask a good many practical questions which are ably answered.

* * *

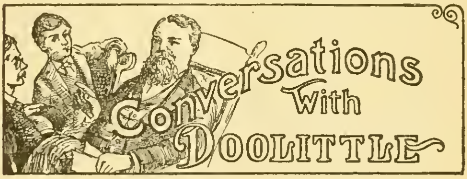
In regard to getting a foul-brood law in California, Prof. A. J. Cook says:

> California secured an excellent law, with no expense and very little effort. Why was this? Because Southern California is very generally organized. There are many farmers' clubs. Thus they have tremendous influence. They considered as a whole the matter of legislation, and decided that they needed six laws, one of which was the foul-brood law. They went solidly to the Legislature, and secured every enactment that they desired.

* * *

The following, in regard to pre-judging queens, by G. M. Doolittle, is well worth the consideration of all who buy queens. I deem it one of the most remarkable cases Mr. Doolittle has given us. After speaking of certain queens that were condemned by Dr. Gallup and Mr. Alley, he says:

> I will say that I had one of those worthless (?) Hamlin queens sent me as a premium for securing the most subscribers to a certain bee-paper in a given time. The queen came in June; and as she was from one of he best breeders of the seventies, I thought to give her the best possible chance, which I did. Imagine my surprise to find that, with all my extra care and coaxing, I could get her to put eggs in only three Gallup frames, and very scattering at that. I came very near pinching her head off in the fall, but finally concluded to give the colony frames of brood and honey from other colonies, and thus the colony was got through the winter. The next season she proved no better than she had the year before, and I have no doubt Dr. Gallup would have called her a "worthless degenerate," and Mr. Alley would have alluded to her as "worthless as a house-fly." Was she thus? Well, we shall see.
>
> I had her in my hand one day, being just about to pinch the life out of her, when the thought arrested me that Dr. Hamlin would not send me a worthless queen as a premium and that I would rear a few queens from her, which thing I did, she dying soon afterward, of apparent old age. All of these young queens proved to be extra good ones, and one of them was the mother of the colony which gave me 566 lbs. of honey in 1877, and was used in laying the foundation of my present apiary; 466 pounds of this honey sold at 20 cents per pound, and 100 at 15 cents, the total cash resulting from that colony that year being $108.20. Was her mother worthless? Quite a "house-fly," wasn't she? Stood way up by the side of the best of cows as to value! The honey sold from this colony during that year amounted to $8.20 more than Mr. Aley prized his $100 queen at, and lacked only $91.80 of giving as much cash in a single year as the celebrated Root long-tongued queen was ever valued at. And yet, if I do not misinterpret Dr. Gallup, he would no more have bred from that Hamlin queen than he would from those two imported worthless (?), degenerate (?), housefly (?) queens he got of A. I. Root, which he tells us about on page 423.



FEEDING BACK EXTRACTED HONEY.

"Good afternoon, Mr. Doolittle. Do you know any thing about feeding back extracted honey to produce comb honey?"

"Just a little. But what put that subject in your mind at this time of the year?"

"I read somewhere last winter that if one were to run an apiary for extracted honey, during the harvest of white honey, and feed the same back to the bees to put into sections, said extracted honey would sell in the section form for enough more to give me a big profit. Is this a fact? And if so, how and when should extracted honey be fed back in order to produce comb honey?"

"Feeding back extracted honey in order that comb honey may be obtained is something that has been tried by very many of our best apiarists, and still remains, if I am right, an unsolved problem with some of those who have tried it. Some have reported success and others a failure; but if I am right again, and I think I am from what I have read and heard, those who consider it a failure, to a greater or less extent, far outnumber those who consider it a success."

"That is something I did not expect to hear. Have you ever tried it yourself?"

"Yes; and from my experience in the matter I feel like saying that, if any one must feed extracted honey to his bees in order that comb honey may be produced, it could be better fed in the spring, in order to hasten brood-rearing, thus securing multitudes of bees in time for the honey harvest; then by putting on the sections in the right time, a large crop of comb honey may be secured if the flowers do not fail to bloom or secrete nectar."

"But suppose we get the bees in time for the harvest in some other way, do you not think it could be done at a profit?"

"My experience did not so argue. It led me to believe that it is better to secure the honey in the sections in the first place, rather than have it stored in frames of comb, and then thrown out with the extractor that we and the bees may go through with much labor and stickiness to secure the same thing which might have been secured without all this trouble."

"I do not fully understand. Explain a little more minutely."

"The practice of feeding back is on the principle of producing two crops in order to secure one, and it seems strange to me that any one would argue that such a course would pay in the long run. Even under the most favorable circumstances, such as having the bees finish nearly completed sections of honey, I could not make it more than barely pay, if I counted my time what it was worth to me in other ways. At the close of certain seasons, when I would have a large number of unfinished sections, many of which were so nearly finished that a few ounces of honey would apparently finish them, it seemed that it might pay to feed a little extracted honey to finish such; but after a careful trial of the matter, covering a period of some fifteen years, I finally gave it up as not being a paying investment, even in such cases, to say nothing about extracting with the view of feeding the honey for the bees to fill sections with from start to finish."

"What you say sounds quite reasonable; but I believe I will try two or three colonies so as to prove the matter for myself. How would you advise for the best results?"

"I have no objections to your trying the matter; but rather rejoice that you have so decided, for you may strike on something we older ones have not; and by going slow, as you propose, it will be no very serious loss to you if you succeed no better than I did. But to your question: It is generally conceded that the best results can be obtained by feeding the extracted honey right at the close of the early white-honey harvest, so that the bees are kept active."

"Can you tell me how I should prepare the hive for this work?"

"It is generally thought best, I believe, to take away all frames except those which are quite well filled with young brood, when preparing the colony for feeding back, using dummies in their places; but if all combs are filled with sealed honey, except those which the brood occupies, these combs of honey will answer as well as dummies, so far as I can see. You might try both ways, and then you could tell which you like best, should the thing prove a success in your hands."

"How about the honey to be fed? Shall I feed it just as I find it, as stored away from the extractor?"

"I think all agree that this honey should be thinned to the consistency of raw nectar, if not a little more, by adding the necessary amount of warm water."

"How large an amount can I thin at a time?"

"Only the amount needed for feeding at one time should be thinned, or two feedings might possibly answer; for if the thinned honey is allowed to stand long in warm weather it is quite liable to sour and spoil."

"How about feeders and feeding?"

"Almost any way of feeding will do. I set an empty hive at the rear of the one being fed, making a communication between the two at the bottom so the bees could come in where the feed was. In this empty hive I placed division-board feeders to a sufficient number to hold 25 lbs. of the thinned honey. This whole 25 lbs. would be carried out of the feeders the first day, and usually nearly the same amount the second 24 hours, but later on they would not carry so fast, when only what they would nearly clean up each day would be fed, as the thinned feed is liable to sour in the feeders, if the bees are several days in taking it out."

"Thank you. I must be going now."

"Before you go I wish to say that there is an item regarding comb honey produced in this way which we have not touched on."

"What is that?"

"This fed-back honey is far more likely to candy or become hard in the comb than that put in the comb at the time it is gathered from the fields."

"How is that? The writer of the article I was reading said that section honey produced in this way looked very fine indeed."

"When first taken from the hive it looks very nice and attractive; but when cool weather comes on in the fall it assumes a dull, unattractive appearance, thus showing that the honey has hardened in the cells; while comb honey produced in the ordinary way is still liquid, and will keep so for from one to three months after the fed-back article has become so hard as to become almost unsalable."

"That will be quite a drawback. But I still think I will try the matter on a small scale."

Editorial
By E. R. Root.

In a private letter received from Inspector N. D. West, he says he "believes" that the formaldehyde scheme is a boon. He thinks, however, that he and his colleagues deserve as much credit for its introduction as any other person, except Prof. Harrison, of Canada. He says he "believes," by which I take it he is not yet prepared to make a positive statement until some further experiments have been made.

FURIOUS SWARMING AT MEDINA.

Bees have swarmed more furiously at our home and outyards this season than we have ever known them to do before. The season was so rainy and cold up to the 28th of June that the bees were on the verge of starvation, although rearing brood at a good rate. Well, when we did have bright days and hot weather, or what the farmers call "corn weather," the nectar came in with a rush, for the fields were white with clover everywhere, and basswood was just beginning on the 28th of last month. The result was, the bees poured out of the hives like shot out of a gun. They did not stop to fill up their hives; but the long-hoped-for weather had come, and it was "hurrah, boys!" or, rather, "hurrah, girls! let us swarm now, and not wait for more cold and rainy weather to set in."

The result was, I had to drop my work here in the office, and turn out and help the "boys," who had more than they could do in giving the bees more room. I enjoyed shinning up the trees at the basswood yard, for swarms; but let me tell you I let one of the boys do most of the "shinning;" for at 41 I do not feel quite as agile as I did twenty or more years ago.

FIVE-BANDERS FOR COMB HONEY — THEIR ANCESTRY.

Neighbor H., or Mr. H. B. Harrington, who years ago made a specialty of Cyprian queens, reared thousands of them, hived several swarms of five-banded bees at the home yard on Sunday, June 28, while the rest of us were at church. When I got back, he asked how long we had been keeping Cyprians.

"Why," said I, "we haven't any."

"Oh! but you have," he insisted. "They have the same markings, and act in the same nervous way. You can't fool me. I know the Cyprians well."

I believe he is right. I have always said that the five-banded bees were quite apt to show Cyprian traits, and that I believed their ancestry was pure Cyprians. But whatever their origin, I find many of them good workers, as were the Cyprians; and, as I have said in a Straw in this issue, I think they are a little more inclined to enter comb-honey supers than the average leather-colored Italians.

The time was, when we had nothing but imported stock direct from Italy in the yards, when we could go through them almost any time without a veil, bare-armed. One season I worked unprotected for six weeks without getting a single sting, and I was in the yard constantly. Now that we have a sprinkling of five-banders as well as of the leather-colored stock, let me tell you I very seldom go through any of the yards without a veil on. This sprinkling of extra-yellow blood of Cyprian origin makes the bees crosser.

HOW TO GET SWARMS DOWN FROM THE TOPS OF TREES.

Elsewhere I speak of the fact that we have been shinning up trees to get swarms. You may wonder why we did not pursue the good old orthodox plan of having the queens' wings clipped, or why the colonies had not been shaken, to stop all of this unnecessary climbing and chasing. In the first place, some of our customers object to having their nice queens clipped—don't like the looks of them. In the second place, the swarming weather caught us by surprise. We had about given up having any honey-flow, and the problem had been to keep our bees from starving. But the season opened up and the bees swarmed, and how should we get them out of our tall basswoods? No way under the sun but to climb after them. We used a jack-knife to cut off the limb on which the swarm hung, then by carefully dodging among the limbs we climbed down to the ground as best we could, handing the swarm to an attendant as soon as he could be reached. But the jack-knife in cutting jarred the limb. I finally took down a big pair of pruning-shears, two big potato-sacks, and some stout string, supplying the boy who did the "shinning" with all these before he went up the tree. The shears were handy for clearing out a space through which to let the bees down. After reaching the swarm, the boy would proceed to slide the bag up around the bees. Then he would grab the neck of it around the limb, and with the pruning-shears clip it off. He could then with his rope let down bees, limb, bag, and all, or he could climb down without danger of jarring the bees off, or without any fear of being stung. In descending through the tree, holding a limb from which a big swarm is hanging, one is liable to bump it against the foliage, dislodging many of the bees, filling the air full of them. These will in all probability alight on the limb nearest where they were first clustered, with the result that another climbing is necessary to get all the bees. The coffee-sack or bag saves all this trouble. The pruning-shears are a vast improvement over the jack-knife. When the bees swarmed we had to hack away with this ever-present and usually convenient tool, but which, on occasions of this kind, was any thing but convenient or suitable.

I have been wondering if it would not be a good thing for those who do not clip the wings of their queens to have a special belt gotten up in which could be fastened a small short saw, a pair of strong pruning-shears, a smoker, a rope, and perhaps some other tool that might be necessary to complete the equipment.

The majority of bee-keepers believe, and believe rightly, that the *only way* to handle swarms is to do so by the clipped-wing plan. But something will happen, on account of which they will not get at the job, or perchance some queens will be skipped. In either case a swarm or two is liable to get to the top of a tree, and nothing but climbing after it will bring it to earth again. I have seen the day many and many a time when an outfit of tools, with a pair of climbers already hitched to a belt, and ready to strap on, would be worth a good deal. There is nothing like being prepared for an emergency; and when one is a hurry, the more convenient and handy his tools are, the more effective will be the work.

THE LOS ANGELES CONVENTION; RAILROAD FARE; HOTEL ACCOMMODATIONS, ETC.

Remember the National convention at Los Angeles, Aug. 18—20. A good many bee-keepers are going on the Santa Fe route, from Chicago. If we can get 18 people to go clear through from that point, the bee-keepers can have a tourist car all to themselves.. About a dozen have already signified their intention of going. It will make a great trip, and we hope a few more can be induced to go. The regular fare to Los Angeles and return, from Chicago, not including berth and sleeper, is $50.00. The tourist sleeper is $6.00 one way for berth, and of course two can be accommodated in a berth, making actually $3 00 per head. The extra cost of seeing the Grand Canyon will be $6.50 for car fare, and $2.00 for berth. Most if not all of the bee-keepers expect to take in the Grand Canyon. As many stop-overs will be allowed as desired, west of Colorado; and one can come back by any route he desires. But arrangements must be made in advance; and if you wish to get a berth in the tourist sleeper you had better engage it at once. If bee-keepers should not be able to get the required number, 18, the car will be filled up with other people, and probably every available berth will be taken, and more too. For particulars inquire of Sec'y Geo. W. York, 144 Erie Street, Chicago.

In the way of hotel accommodations at Los Angeles you can get board at from 15 to 25 cents a meal, and lodging at 25 cents a night. For particulars inquire of C. H. Clayton, 739 Aliso St., Los Angeles, Cal., or of Mr. Phillips, who writes as follows:

In regard to "eating and sleeping" the bee-keepers from the East who may attend the National meeting, let me add a word to what you have already said. As you suggested. prices have stiffened somewhat since 1901; but Dr. Miller and all who come to visit Los Angeles may rest assured of being entertained in comfort at very reasonable rates. Rooms may be had at from 25 cts. per day up. At the Savoy, directly across Broadway from the Chamber of Commerce, over the department store, also in many other rooming-houses and hotels, the inside rooms generally cost, for one person, 50 cts., and the outside ones—that is, those lighted by windows instead of skylights, cost $1.00 (some rooms more) for two persons. But all are attractive and comfortable. The Natick House, where you stayed. advertises a follows:

"The Popular Hotel remodeled, 75 additional rooms, all newly furnished. Every thing strictly first-class. Elevator, American plan, $1.25 to $3.00 per day. Latter includes suites with private baths. European plan, 50 cts. up."

Then there are very numerous cheap lodging-houses; and the center of the city, or a wide circle just outside the business center, is almost wholly given up to rooming-houses. It beats any city with which I am acquainted, in that regard. You must know that Los Angeles is "in the business" of entertaining visitors; in fact, it derives its principal revenue from that source For those bloated bondholder bee-keepers who have no need of economy, or those who, being out for a once-in-a-lifetime lark, are anxious to "do the whole thing," there are the Van Nuys and the Angelus, where prices are quite "respectable."

There are many 15-cent restaurants; and if you want a 10-cent meal, with meat and vegetables, well cooked, go to Warner's restaurant, on South Spring St , near Fifth, only two blocks from the Chamber of Commerce. The people who eat there are apparently as respectable and as well dressed as the average bee-keeper (I mean when the bee-keeper is "out"); and one may sit and study the scripture texts around the room while waiting for his order. It is not a charity but a money-making eating-room, and thousands of good people patronize it.

You can add to the simple meal, if you wish, one-third of a pie for 5 cts., for instance, with ice-cream added for luck.

Of course, you would not expect a "great big meal" for this price. At 10 cts. nothing can be allowed for waste.

I need only add that I have not the remotest interest in these places, but am just giving you a leaf from my own experience in a city with which I am quite familiar.

I am the merest tyro compared with the masters in the art who are to convene at Los Angeles; but, as "a cat may look at a king," I hope to see and hear the master of Marengo and the "Bee Sage" of Borodino, along with yourself, Mr. Editor, and others whose names are household words to readers of the bee-journals. M. H. Phillips.

Covina, Cal., July 2.

PROPOSED AMENDMENTS TO THE CONSTITUTION.

Past experience has shown the need of a new constitution for the National Bee-keepers' Association. The following proposed amendments have been submitted so that the bee-keepers, when they meet at Los Angeles, will have something as a basis upon which to work.

President's Office, National Bee-keepers' Association.

The following amendments to the Constitution of the National Bee-keepers' Association have been approved by a majority of the Board of Directors, and of the Executive Committee; but before laying them before the coming convention at Los Angeles it is desired that all shall have an opportunity to criticise and suggest, hence their publication. Suggestions and criticisms may be sent to President Hutchinson, who will lay them before the committee having the matter in charge.

Article III.—*Membership.*

Sec. 1, to be amended to read as follows:

Sec. 1.—Any person who is interested in bee culture, and in accord with the purpose and aim of this Association, may become a member by the payment of $1.00 annually to the General Manager or Secretary; and said membership shall expire at the end of one year from the time of said payment, except as provided in Section 10 of Article V. of this constitution. No member who is in arrears for dues, as shown by the books of the General Manager, shall be eligible to any office in this Association; if such disqualification occur during the term of any officer, the office shall at once become vacant.

Sec. 2, to be amended as follows:

Sec. 2.—Whenever a local bee-keepers' association shall decide to unite with this Association as a body, it will be received upon payment by the local Secretary of 50 cents per member per annum.

Article IV.—*Officers.*

Sec. 1, to be amended to read as follows

Sec. 1.—The officers of this Association shall be a General Manager, a President, a Vice-president, a Secretary, whose terms of office shall be for one year, and a Board of twelve directors, whose term of office shall be four years, or until their successors shall be elected.

Sec. 3, to be amended to read as follows:

Sec. 3.—The President, Vice-president, Secretary, and General Manager shall be elected by ballot, during the month of December of each year, by a plurality vote of the members, and assume the duties of their respective offices on the first of January succeeding their election.

Sec. 4, to be amended to read as follows:

Sec. 4.—The President, Vice-president, Secretary, and General Manager shall constitute the Executive Committee.

Sec. 5, to be amended to read as follows:

Sec 5.—The Directors to succeed the three whose term of office expires each year shall be elected by ballot during the month of December of each year by a plurality vote of the members The three candidates receiving the greatest number of votes shall be elected, and assume the duties of their office on the first of January succeeding their election. The Board of Directors shall prescribe how all the votes of the members shall be taken, and said Board may prescribe equitable rules and regulations governing nominations for the several offices.

Article V., Sec 3, to be amended to read as follows:

Sec. 3 —It shall be the duty of the Secretary to keep a record of the proceedings of the annual meeting; to receive membership fees; give a receipt for the same, and turn all moneys received over to the Treasurer of the Association, together with the names and postoffice addresses of those who become members; to make an annual report of all moneys received and paid over by him, which report shall be published with the annual report of the General Manager; and to perform such other duties as may be required of him by the Association; and he shall receive such sum for his services as may be granted him by the Directors.

Article VII.—Vacancies.—Amend by adding the following clause to the end thereof: Any resignation of a member of the Board of Directors shall be tendered to the Executive Committee; any resignation of a member of the Executive Committee shall be tendered to the Board of Directors.

Article IX.—Amendments.—This constitution may be amended by a majority vote of all the members voting, providing such proposed amendment has been approved by a majority vote of the members present at the last annual meeting of the Association, and copies of the proposed amendment, printed or written, shall have been mailed to each member at least 45 days before the annual election.

HONEY-CROP FOR 1903; QUANTITY AND QUALITY, PRICES, ETC.

THIS has been a peculiar season; but, taking all things into consideration, there will be more white-clover honey this year than last. The season has been exceptionally good in a great part of the white-clover region, particularly in Wisconsin, Minnesota, Illinois, Iowa, Indiana, and Ohio. In some of the Southern States the season has been poor. In the New England States there has been an almost complete failure; but recent rains have toned up the situation so that some honey will be secured. The yield of white honey has been light in many parts of New York; but, as in the New England States, the recent rains have improved conditions, but not quite enough to affect materially the crop of white honey, but sufficient to make, probably, a fair flow from buckwheat.

In Pennsylvania the season has been poor to fair. In Nevada and Utah the season has been good, and the honey is of first quality. In Arizona the flow has been less than the average. In Kansas and Nebraska the crop has been light in most sections. In Washington the season has been poor. Texas will not come up to the average. Idaho has had a severe loss of bees. In Colorado there may possibly be the usual crop, but the season was unfavorable in the early part of it. In Southern California, notwithstanding the early prospects were so flattering, there will be only about a third of a crop. In the central part of the State the season is little if any better.

As to the quality, the honey will be extra-fine this year; and even if there should be more of it this year than last, it will be so much better that the prices ought to hold the level of last year, especially if we take into consideration the general advance in other things during the past year. In the Eastern markets, where production has been light, there ought to be a general toning-up of prices. There will not be a large amount of California honey shipped east this year, probably; so what little honey is produced ought to bring good prices.

The following reports are from leading bee-keepers and dealers in bee-keepers' supplies throughout the United States.

After writing the foregoing the weather turned cold, and this seems to be general over a great portion of the United States. If this cool weather continues it will chop the flow from white clover almost square off. That being the case, the expected crop will not be as large by considerable as seemed likely on the surface of things three days ago.

For convenience the reports are arranged alphabetically by States.

Telegram —Present indications for honey crop, less than average; irrigation water short; we expect fair prices. WM. ROHRIG.
Tempe, Arizona, July 9.

Telegram.—One-third crop for Southern California. Price, extracted, five to six cents; comb, ten to eleven. UNION HIVE AND BOX CO.
Los Angeles, Cal., July 8.

Telegram.—Present estimate from crop reports in, not over one-third. GEO. W. BRODBECK.
Los Angeles, Cal., July 6.

Up to the present time the prospects are not very flattering. We made our first extracting about June 20; very little poor-grade comb honey taken off thus far; but the carpet-grass may give us considerable honey later in the season, as has been the case in former years We do not look for more than an average crop at the best. WESSING BROS.
Nicolaus, Cal., July 8.

We are having a very late season this year, and for this reason it is hard to say at present what the crop will be. Bees came through in a rather weak condition, and many colonies are not strong enough to work in the sections yet; however, the weather conditions during the past two weeks have been favorable; and should this continue we may yet hope for a fair crop of honey. FRANK RAUCHFUSS.
Denver, Col., July 8.

The honey crop in Mesa County promises to be a good average one Bees began work late; but alfalfa is being allowed to bloom more fully before cutting than has been the custom in past years. This alone should cause the bees to make up for lost time. McKay & Stroud.
Debeque, Colo., July 6.

Our season is now over, and the poorest honey crop in thirty years. J. E. Williams.
Sparks, Ga.

The crop outlook of white-clover yield is good. No flow from basswood. E. C. Wheeler.
Marshalltown, Ia., July 6.

We have been having a very good flow of white honey during the past month, which continues with good prospects. J. Blackman & Son.
Nevada, Iowa, July 7.

Fields are white with clover blossom; nights too cold for nectar secretion. No basswood blossoms; perhaps ½ crop; 25 sections to colony, spring count. No honey up to June 15. Bees flitting on blossoms; too much moisture in the ground; sweet clover in bloom.
Des Moines, Ia., July 6. Jas. Cormac.

For Jackson Co., Ia., the white-clover crop is beyond all precedent It began about June 1, and will continue two weeks longer if weather conditions are favorable. F. M. Merritt.
LaMotte, Ia., July 6.

Prospects are better than last year; excessive cold rains and cloudy weather; swarming more natural than a year ago. If the 65 colonies give me enough for my own table I shall be satisfied. Let's go fishing, Ernest.
Moorland, Ia , July 5. J. P. Blunk.

[Yes, when I come up your way again. Thanks.—Ed.]

The prospect for a honey crop is very good here, and the honey is snow-white. I never heard of so much swarming and absconding. The crop is all clover honey, before sweet clover bloomed—something I never heard of before. Joseph Mason.
Fairdale, Ill., July 9.

Bees swarmed too much. More white clover than common. Flow of honey good, and good quality. I think the hot sun will soon dry up and stop the flow.
Kasbeer, Ill., July 8. E. Pickup.

I can report an extra good harvest from white clover—about 40 lbs. average of section honey, finished to this date. F. H. Cogswell.
Virden, Ill., July 7.

This part of the world is covered with white clover, hence a good flow of honey—the best for years
Wyanet, Ill., July 4. James P. Hall.

I will place the fourth super containing forty 1¾-in. sections on one colony, all from white clover. Who can beat it? While I work bees I have a deputy to work the office. M. S. Brewer, P. M.
Philo, Ill., July 5.

The white clover here is unusually good. Honey-flow is very good since June 15. Honey is white as snow. Cold and rain interfered for a few weeks in June. Bees are booming now; sweet clover is also coming bountifully—best year in twenty.
Springfield, Ill., July 4. M. Harts.

One hundred miles west of Indianapolis. Honey crop good here—one of the best in the past seven years. Home market is good also, and dealers pay 15 cents by the case for comb. C. F. Bender.
Newman, Ill., July 7.

The honey-flow up to date has been by far the best I ever saw; fields white with clover which is full of nectar. R. B. Rice.
Mt. Carroll, Ill., July 4.

Located five miles south of LaSalle. White clover abundant and yielding well. E. H. Whitaker.
LaSalle, Ill., July 7.

I never before saw such a sea of white clover, and never expect to see it again. Nuclei become so crammed with honey that I must be constantly taking out the filled frames; and combs with a little honey set out weeks ago for the bees to rob out have still honey in them, although a few bees seem always at work on them. C. C. Miller.
Marengo, Ill., July 8.

Our reports show that the far East has practically no honey, and the far West perhaps not more than half a crop. The central portions of the country seem to be having an enormous flow; especially is this true of the locality within, say, 300 miles of Chicago. The demand for bee-keepers' supplies has not been so great in ten years. It seems that everybody wants a lot of supplies, and wants them right away. There seems to have been a great deal of swarming, and a good yield from white clover. Personally, we have never seen such a perfect mat of white-clover bloom as there is in this locality this season.

We doubt if it will be necessary for the price of honey to be lowered very much, if any, from the price of last season. We think the people are ready to buy honey more freely than ever before. This, we think will be especially true as the bulk of the honey produced is of white clover, and that seems to be the kind preferred by the majority of the people; at least they *think* that is the kind they ought to have. The joke is usually on them, as they are apt to call nearly all kinds of honey clover honey. There is practically no new honey on this market as yet, but we suppose it will begin to come in very soon. George W. York.
Chicago, Ill., July 1.

The crop is very good right around us, all clover. The cool weather did not seem to do it any harm, and we believe that there will be a very good crop of bright-colored honey. Personally we have harvested a larger yield than for 13 years past. Our home apiary will average over 130 lbs. per colony at this date, besides more swarms than common, for we rarely have much swarming. Dadant & Son.
Hamilton, Ill , July 2.

Generally, throughout the State, the yield has been the best for ten years. The flow has been prolonged, and I have had several reports from reliable sources of an average of over 100 lbs. to the colony from white clover. Walter S. Pouder.
Indianapolis, Ind., July 1.

I wish to state that the honey prospects for Northeast Indiana have not been better in the last twelve years June 25 I placed a fair average colony on scales and found they gained 7 lbs. during the day, and also for two preceding days the gain was 7 lbs. per day. As this colony is only one out of forty doing equally well, it certainly ought to make the heart of any bee-keeper rejoice. White clover is abundant everywhere. S. Farrington.
Kendallville, Ind., June 29.

We have not a pound of honey in this immediate locality for market. It requires some help from the bee-keeper to keep bees alive, or abundant enough for use next month. March maple bloom during 15th to 20th caused bees to whiten combs even more than fruit-bloom later, and three to four weeks later farmers were reporting swarms. Some have been taking a super from best hives—dark honey. Some white clover with honey-dew mixed. One farmer reported honey-dew from oats-field. I think we should be safe in counting 40 to 75 lbs. average, according to ability and management of bee-keeper with our best apiaries, and of this crop our home markets have been using nearly all. Prices will be maintained as well as last year, as our market is well sold out, and towns north of us will need supply. W. Vickery.
Evansville, Ind , July 3.

White clover is splendid; basswood, off year. Colony on scales gained 38 lbs. in five days; best day, 9 lbs.; poorest, 7. Many working in third super.
Kendallville, Ind., July 6. S. Farrington.

Throughout the fore part of the season the outlook was poor, though the earth was covered with white clover. The weather was so damp and cool the bees did not fly. But about the middle of June a wonderful flow began, and has kept up to the present. I have about 1000 well-filled Danzenbaker sections, and nearly that many more on that bid fair to be filled, as the flow is as abundant to-day as ever, owing to powerful rains a few days ago (49 colonies). At the north Mr. Baker has done still better. His 50 colonies will yield him 5000 lbs. He has about half that amount already. Jacob Tate.
Peru, Ind., July 4.

Bees have done but little, just barely kept alive, too cool and wet. The freeze of April 30 and the flood of June 1 have taken all the bloom. The second crop of alfalfa is now just coming on, and in a week or ten days it will be in bloom. I fed my bees through June to pull them through; no swarms but 5 out of 100, and had to feed them to save them. Outlook is slim for a honey crop unless the alfalfa does well from now on.
Hutchinson, Kan., July 6. J. J Measer.

April, May, and part of June, mostly cool and rainy. Even when the sun shone we had many cool days, and bees could not gather nectar to amount to any thing, and brood-rearing was much retarded. White clover bloomed in greater abundance, I think, than I ever saw it. Since about June 7 the weather has been

more favorable, and bees have done fairly well. They are now working on red, white, alsike, and sweet clovers. I have taken 32 lbs. from my best colonies run for comb honey. Some colonies (the best) have filled two ten-frame bodies, 18 frames. Will extract in a few days. Prospects for fall crop fair to good. The latter seldom fails entirely here.
Bluffton, Mo., July 4. S. E. MILLER.

Prospects here are very promising for good honey crop—better than for several years. I now have 20 colonies, and some have supers two-thirds full of honey, and very little swarming. J. H. DIERKER.
St. Louis, Mo., July 6.

Good honey-flow from clover—best in years; basswood not in yet, but not half the trees show buds.
Collins, Mich., July 6. GEO. E. GOODWIN.

Clover honey in comb will be 40 lbs. per colony, spring count. Basswood light; not many buds to open. GEO. H. DENMAN.
Pittsford, Mich., July 6.

The honey crop in this vicinity is the best that we have had for a number of years; fruit-bloom coming with good weather, and abundance of clover following. So far as we are able to judge, the crop will be good throughout our section of the State. We would make special mention of Huron and Sanilac Counties as being the banner counties so far as we can judge from reports coming in. The price remains good at present, and with it a tendency to market the crop early. White clover will probably yield for some time yet. There is little basswood in our vicinity, and we can not tell what the prospects are elsewhere.
Bell Branch, Mich., July 7. M. H. HUNT & SON.

We have not had such a season in ten years so far for the production of honey, and, so far as I can learn from my extensive correspondence, and the amount of goods shipped, it is quite general over the State. The conditions are favorable for a good crop of clover honey. Beyond that I can't predict, and I can't say as to the prices that may be secured; but the quality so far is good, and it should bring as much as it did last year, as the quality will be much better.
Fremont, Mich., July 2. GEO. E. HILTON.

Clover-honey prospects good. In June I extracted some dandelion and wild-cherry honey, besides building up colonies strong J. KIMBALL.
Duluth, Minn., July 6.

Our bees at home, Ft. Snelling, Lake Garvias, Lake Phalen, and Mora are all doing well. The willow-herb at Bruno, Minn., looks as nice as I ever saw it, and we expect as large a crop as we had three years ago from the willow-herb, giving us over 200 lbs. average per colony. Reports from all over this State and North Wisconsin are all good—many say, "Best white-clover crop for years," etc., amounting to about the same. Not many have spoken about the basswood, but some say it looks well; and what we see here, at Mora, and Bruno, Minn., looks well. I see no worms on the trees. H. G. ACKLIN.
St. Paul, Minn., July 3.

The season commenced with a severe drouth lasting to June 1, when the whole country seemed burning up and shrouded in smoke followed by heavy rains for two weeks, since which time we have had partly fair partly cloudy but cold weather, especially cold nights, and the whole country covered as I never saw it before with clover bloom, but no honey. Bees have gathered very little honey to date, and cast but few swarms. At present they are up to the swarming-point, hanging on. From reports received, and from the present outlook, not over a third of a crop will be secured, and prices should rule higher than last year.
Mechanic Falls, Me., July 8. J. B. MASON.

Prospects for honey are poor; too dry up to June 10; now too much rain; basswood just opening, but not many trees will bloom. Some colonies starved during the cold backward spring. BURDETT HALL.
Chittenango, N. Y., July 5.

Fruit-bloom furnished the necessary stores for brood-rearing, but no surplus. Colonies were slow in building up during the spring on account of continued cool weather. There has been a good growth of clover, but constant rains kept the bees from work during the first week or ten days after it opened. Considering the abundant bloom, the bees are not gathering honey as fast as might be expected, and it now looks as though there would not be more than half a crop of clover honey from clover in this portion of the State. Sweet clover and basswood promise fairly well. There are very few basswood-trees left in this locality. I am informed that, owing to the drouth, there will be no white-clover honey to speak of in the middle and eastern part of this State. OREL L. HERSHISER.
Buffalo, N. Y., July 9.

The outlook for a crop of honey is very good. Up to about one week ago the prospects were poor; but now the weather is warm and sultry, and bees are working in the sections, and we have reports of bee-keepers extracting. We think the season will be 50 per cent better than a year ago, and price for honey will probably be the same as last year. F. Boomhower writes, "Have taken 100 lbs. of comb honey from one hive." F. A. SALISBURY.
Syracuse, N. Y., July 6.

Honey crop here almost a total failure. Too wet during clover bloom. A. W. SMITH.
Parksville, N. Y., July 8.

We are having a heavy flow from catnip, hoarhound, and the clovers. I already have on my fifth 10-frame hive. My best colony has given over 400 lbs. surplus already. Basswood did not bloom in southeastern Nebraska this year. The flow along the Missouri line will be light. J. L. GANDY.
Humboldt, Neb., July 3.

Fourteen miles east of Columbus. A tremendous flow of honey here, and the end is not in sight; crowding the queens out. Sweet clover is just coming in; catnip in bud. FRANK MCGLADE.
Pataskala, O., July 6.

The prospects for a honey-yield are above the average for this locality. Basswood is yielding well, and white clover is plentiful, and still looking thrifty and bright, and we think it will yield all of this month if weather is favorable. We are getting 15 cts. for comb honey. MCADAMS SEED CO.
Columbus Grove, O., July 9.

No rain from April 15 until June 1; rained 22 days in June, and 3 in July. My bees are swarming.
Spring City, Pa., July 6. GEO. CULLUM.

We have nothing to report as to the season, except that orders continue to pour in, and a good many customers are reporting many swarms and taking off full supers of honey. PROTHERO & ARNOLD.
DuBois, Pa., July 1.

Bees wintered well. The spring and early summer have been favorable for the development of strong colonies. Recent rains have interfered with honey-gathering, but have prolonged the clover season two or three weeks. Basswood is budded full, and the acreage of buckwheat will be more than the average. In fact, prospects for a large honey crop are bright in Northern Pennsylvania. CHARLES N. GREEN.
Troy, Pa., July 7.

We have had much peculiar weather. Prospects were at the first of the season for a big crop. Bees did very well, and about 25 per cent ahead of June 1 the previous year, but during June bees did scarcely any thing, and consumed all the honey in their brood-chambers for increase, and now they are starting in to work again very freely, and using considerable of it in the first story, and we think this condition is the same in New Jersey, Delaware, Pennsylvania, and Northern Maryland. This has made things dull in June. I would say, on the whole, that the crop in this section will be only fair, using your terms, or about half a crop comparing with a period of ten years.
Philadelphia, Pa., July 3. WM. A. SELSER.

A drouth lasting from early April till June 8 has nearly ruined our prospects for honey here in Vermont. I doubt if there is as much honey in hives July 1 as two months ago. I have had but one new swarm so far from 500 colonies. There will be but little basswood bloom. The abundant rains of the past three weeks, with cool, cloudy weather have started a new growth of clover that is just coming into bloom, from which we hope we may secure a light crop of honey later. J. E. CRANE.
Middlebury, Vt., July 1.

Through spring, season was too wet and cold. With June came pleasant weather, abundance of white clover which has yielded well (something it does only once in several years here). Basswood promises well, but not open yet. B. J. THOMPSON.
Waverly, Wis., July 6.

White clover bloom is abundant; honey clear, and fine body; have extracted up to date 33,500 lbs. Our Cowan 4-frame extractor ran out over a ton to-day before noon, and will do as well this afternoon.
Platteville, Wis., July 1. N. E. FRANCE.

According to statements made by our customers, we consider the outlook very favorable for a good honey crop, although the cool weather in the early part of summer has had a tendency to keep down swarming. The weather here of late has been such that it warrants a good crop. Price of honey is somewhat higher than last year, but finds a ready sale in this market. According to some of our customers' statements, the honey crop will be better than any that they have had within the last five years. PAGE & LYON MFG CO.

New London, Wis., July 9.

We are in the midst of the best white-clover honey harvest I have ever known. It will last ten or twelve days yet, with favorable weather. No basswood honey, although some trees are in bloom; but there are not enough trees producing this year to make any showing on the crop. C A. HATCH.

Richland Center, Wis., July 9.

As well as we are able to determine, the honey crop through the section over which we sell hives has been fairly good this season — what might be considered a medium crop. Prices range about the same as last season, wholesaling at from 13 to 17 cents, and retailing at from 15 to 25 cents per section. The minimum retail price here is 20 cents for fancy honey. The 1 and 2 grades are anywhere from 15 to 20 cents retail.

Washington, D. C., July 8. SAFFELL & KERRICK

There has been a good crop of white clover, but there seemed to be no smell of sweetness in the air, except two or three days, owing to cold days and nights; too much rain; bees do not notice it. So far in Virginia, Maryland, Delaware, Pennsylvania, and New Jersey, I have heard of no large yields. What I have seen are hardly up to the average at this date. There is a fair show of clover still booming, with good weather since July 1, and the bees are doing better.

Washington, D. C., July 3. F. DANZENBAKER.

Telegram.—Weather unfavorable; supply of honey less than last year; prices high; will go higher.

Seattle, Wash., July 8. LILLEY, BOGARDUS & Co.

The following came too late to classify.

We had a light early flow, and we now have a good flow from mesquite; but I don't know how long it will last. No very large crop if expected. There is time yet for a fall flow. J. A. COURSEY.

Click, Texas, July 11.

Telegram.—Season is good—over average crop expected; quality extra; early shipment available, last years' prices maintained. JNO. W. LYTE.

Reno, Nev., July 9.

Telegram.—Eighty per cent of bees dead; 50.000 lbs. honey in sight. WM. W. SELCK, SR.

Idaho Falls, Idaho, July 9.

I have tried to learn what the prospects are around this vicinity, and came to the conclusion that, if the weather will keep on as now, with a few warm showers, we shall have. after all, a very good honey-crop. The weather we had brought on a second flow of white clover, and this will help us considerably. Honey in comparison with last year is offered this year so much more, and prices will rule lower.

Cincinnati, O., July 8. C. H. W. WEBER.

At present we are having one of the best white-clover honey-flows. There seems to be a widespread white-clover flora which continues beyond the usual blooming period. On account of the unusually wet spring, heartsease is coming into bloom fully a month sooner than usual, and at this writing it promises a good fall honey-flow. Notwithstanding the good flow of honey in the territory referred to, there seems to be an advance in the price of honey, due to a greater demand, mainly from the working people, who, receiving better wages, now purchase heney for almost daily consumption. Heretofore they purchased honey only sparingly as an article of luxury.

Red Oak, Ia., July 7. E. KRETCHMER.

The honey crop through the State is the best we have had in years. Judging from reports that come in to us we find that there is no portion or part of our State but is getting a big crop of honey. Taking the whole State into consideration, we believe this season's crop is twice or three times that of last year.

L. C. & A. G. WOODMAN.

Grand Rapids, Mich., July 9.

Honey-crop best for years in this locality and Missouri generally. White-clover yield has been good, and a good fall crop is expected. Prices rule fairly well. Scarcity of fruit will make a good demand for honey. We see no reason why bee-keepers should not find a ready sale at a good price.

High Hill, Mo., July 7. JOHN NEBEL & SON.

GENERAL
CORRESPONDENCE.

ANOTHER QUEEN THAT PREFERS NEW TO OLD COMB.

BY H. A. HIGGINS, M. D.

I see in Stray Straws of April 15 that the experience of C. T. Bender confirms the view that, whenever bees have the choice between old and new comb, they prefer the old. I have not had much experience with bees, but have observed closely while I have been working, and I am of the opinion that they prefer the new comb to the old—for brood, any way. I transferred some bees into an observatory hive (glass on *both* sides 16×12) to observe closely their movements, for my own amusement and instruction.

I took old comb out of the box hives and put in the frames of the hew hives; after they had commenced rearing brood I decided to take a frame of brood from a strong colony and give it to a weak one. I did so, taking a frame from the center of the brood-chamber, and substituting an *empty* one in its place. In a short while they had filled the empty frame with new comb and brood, so I took it out and placed it on the outside of the brood-chamber, next to the glass, where I could watch it, putting a frame with foundation in its place. In due time the bees commenced hatching out of the frame I had removed from the center; and before they were all hatched I saw the queen through the glass, laying eggs in the same comb, while the comb in the next frame nearer the center of the hive which contained old comb did not have a single egg in it, neither has it had this season. The queen certainly had a preference for new comb or she would never have come around the old comb to the outside limit of the brood-chamber to the new comb. In the mean time the bees had again filled out the frame in the center, and it was stuffed full of brood, which I have now removed to the other side of the brood-chamber next to the glass, and the bees are now hatching out, and I expect soon to see her "ladyship" around hunting that new comb again, provided the bees don't crowd her out with honey. It was perfectly natural that they would fill out the *empty* frame, and draw out the foundation in the other, when they were put in the center; but why leave the center and go to the outside after it was removed, unless it was a preference for the new comb?

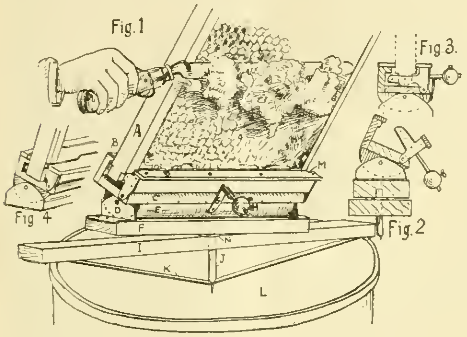
[Dr. Higgins' experience is not greatly different from mine. While I grant that it is, perhaps, a rule that queens will prefer old comb, yet there are many instances when they will seem to show a decided preference for new comb.—ED.]

HOCHSTEIN'S UNCAPPING COMB-HOLDER.

An Excellent Device.

BY C. F. HOCHSTEIN.

Having become interested in the bee business I had, of course, uncapping to do when the honey season began, and I naturally began to look about for some device to hold the combs while I was engaged in uncapping them. I found that a great many bee-keepers balanced their combs on a nail-point while uncapping them. After trying this way for a while I became disgusted with it. First, it was too slow. Second, it was difficult to put the frame always on top of the nail with one hand. Third, it bruised the end-bars of the frames. Fourth, it occasionally allowed the combs to slip off; and, all together, it was a very shipshod contrivance. I then set to work to make something better; and after a series of experiments, and the making of some ten or fifteen different models, of which I will say nothing, I finally evolved the comb-clutch in the engraving. The cross-bar I fits on to the rim of the uncapping-can just as the cross-bar in a honey-extractor does. The strip of tin, K, is to hold the point of the pivot J, which is inserted through the hole N, in the cross-bar I; the top end of the pivot fits into the foundation-block F. Next is the horizontal pivot-block, which works on the pivot D. On to this block are affixed the fixed jaw B and the movable jaw B M (the tops of both of these jaws are lined with lead). Into the movable jaw is screwed the weight H, which opens the jaws, when the comb is withdrawn. The catch G is to catch the weight. It can be shoved down sidewise when the machine needs cleaning, as when it is down the jaws can be opened much wider.



There is a certain point that the jaws must be opened to in uncapping, as when the jaws open beyond this point the comb is apt to slip. The lead jaws are to prevent the knife from cutting away the jaws. Soft wood wears away rapidly; and any thing like iron dulls the knife too rapidly. The pivot-holds are made so that the movable top part (i. e., all above them) can not lop over beyond a certain angle, as it is with this as with the jaws — if the top lops over further, the comb slips.

While this machine is not so cheap as the nail contrivance, it is not so trashy either; and I venture to say that a man, being equally expert with it and with the nail, can uncap from two to three combs with it while he is uncapping one on the nail, besides having his frames left whole. I am basing my statement on my experience here. I have endeavored to make this machine fill all possible requirements, and I will now leave it to the bee-keepers to say which is the best — that or the nail. I think they will find it not only best but cheapest in the long run, as it saves time. That which once is past can never be regained. It may also save some hard words, which it is altogether possible are sometimes directed at the innocent nail.

[If I am not mistaken, I have alluded to this device before. I saw it at the Hochstein apiary, and our young friend who invented it took a comb and explained to me fully the way in which it worked. In his hands it seemed to be a decided improvement over any thing heretofore used. If I am correct, the comb would stick in place sufficiently to hold its position while the operator happened to be busy at something else. I wish other bee-keepers might test it. All who are in want of the machine had better correspond with the inventor direct. His address is C. F. Hochstein, Paradero de Punta Brava, Cuba.—A. I. R.]

SHALLOW VS. FULL DEPTH SUPERS.

Prevention of Swarming.

BY W. K. MORRISON.

I foresaw that my stand on the question of starters would meet with strong opposition, particularly by conservative people who dislike an innovation. But, like the old darky preacher down in Richmond, I believe "the sun do move," and, if so, so does bee-keeping. To Mr. Gill I will say I know what Colorado winters are like, particularly as it was in one of them I nearly froze to death; and the heat—well, oh my! But it is a good place for bee-keeping. The best way to settle a question of this nature is to try an experiment, and I hope Mr. Gill will try it and give us a report for or against. Still, before going any further I will clear the air by stating I do not believe in swarms, either forced or natural. Both mean much hard work, and that goes against the laziness of my nature. But supposing Mr. Gill puts a swarm, either forced or otherwise, into an Ideal super fitted with full sheets of wired *super* foundation, leaving the bees to get settled in it, say 36 hours before adding on the super with sections, he will find this immensely more satisfactory than hiving on five standard frames, with starters. He will get more sections with less trouble. I believe the Ideal super is slightly too small, but it will do very well for a trial trip.

The conditions of success are these: Full sheets of foundation so that the queen will lay in all the combs as soon as possible; for as soon as a comb has eggs in it the sections immediately above it will be filled out plump and fat. I could never succeed in having the outside sections well filled or filled at all when only five combs were used. The bees invariably worked in the middle only. If the nights are cool, the Ideal super is far ahead.

The same issue in which Mr. Gill's letter appears, some remarkable testimony along this line is also given. One item alone will bear me out, and that is contained in Mr. A. I. Root's account at Bellaire, Mich.

> PREVENTION OF SWARMING.
>
> This whole subject was discussed as usual; but I got a new idea, or one that is new to me. We all agree that, by the use of the extractor, swarming can be discouraged much better than where we work for comb honey. If you give the bees plenty of room to store as near the brood-nest as possible, or better still, right in the heart of the brood-nest, you will discourage swarming. Well, now, instead of using the extractor in throwing the honey out of the combs in the brood-nest, suppose we have half-depth stories and half-depth frames. In this way we can get a case of sections, either empty (or, where the bees have partly drawn out and filled the combs), not only close to the brood-nest, but we can get it right *in* the brood-nest. Our friend Bingham, and others who advocate these very shallow frames, perhaps can tell us more about this. Mr. Fred Somerford, of Cuba, produced a very fine crop of comb honey which was secured on half-depth frames, if I am correct. In fact, he had so large a crop he himself went with it to New York to make a sale.

Mr. Root does not seem to know that a number of persons have been recommending and practicing this same method for years. Several fine articles on this method have appeared in GLEANINGS, written principally from Texas. I have advocated it for several years, and probably lots of bee-keepers use it.

Mr. Stachelhausen advocates similar plans and practices; but, if one may judge from the symposium on forced swarms, his idea does not seem to "catch on." Both forced and natural swarms entail a great deal of unnecessary work just when time is precious in an apiary. Dr. Miller, in his usual way, has a slap at the forced swarms without awakening any one, apparently.

Mr. Clare, who is so strongly in favor of starters, must be a Britisher, for he wishes me to exhibit my pedigree before swallowing any thing. I may say, and the way he sticks out for the old-fashioned way is thoroughly British in every respect, I have kept bees much further north than Rideau Ferry, in Ontario, and that, too, in shallow hives, with good results. As a matter of fact, this idea is old. Over 150 years ago the Scotch adopted a hive much like the Heddon, with shallow chambers, which were often added from below. And swarming may be totally prevented by adding from below; which, being the case, enables the bee-keeper to get very good yields. The idea works as well north as south. I worked it 3000 miles south of Mr. Clare; and Mr. Harry Lathrop, in Wisconsin, works it all right. No, comb foundation is a grand invention when its use is rightly understood. The business of cutting out pieces of comb, slicing off drones' heads, etc., does not suit me. It all takes time; besides, to make drone comb takes time and honey; and to raise young drones takes lots of food rightfully belonging to the working party. Altogether it is a costly experience. I have tried it.

Another thing is this: Persons who use starters have to handle combs with the greatest care; they can't ship colonies any distance; in fact, the beginner who does not use full sheets carefully wired commits a grave error; for if he decides to sell his bees later on he can sell all right; but if he does not, woe to him when he attempts to ship. Good combs well wired are the best recommendation in selling an apiary, north or south. I have had bees shipped to me 3000 miles on wired combs, without the loss of a colony. If the comb is shallow, however, and well fastened to the bottom-bar, it is all right; but that is only another argument in favor of shallow frames.

In the same issue in which Mr. Clare's letter appears, Mr. Orel L. Hershiser advocates a shallow frame, and Doolittle hints about the drone comb. I will bet a cooky he has but very little drone comb about his apiary that is not wanted for queen-breeding. Mr. Danzenbaker has covered this ground very well in his "Facts about Bees." I hope Mr. Clare has a copy. No starters, but broad shallow hives, are necessities for comb honey.

[I have for several years used shallow-depth supers filled with extracting-frames to put on colonies of moderate strength in place of putting on supers of sections. Supers of Ideal depth, or those of the right depth to take 4×5 sections, were used for the purpose. A. I. R. possibly was not aware that I had been using them in this way. With these shallow extracting-supers one can very often get some honey from moderately weak colonies when he may not be able to get comb honey from them at all. They also serve the excellent purpose of giving just enough room, and no more, to accommodate the capacity of the colony.

You speak of one disadvantage of using starters, that the combs are too frail to handle from lack of wires. Starters may be used in wired frames, and the bees will build natural comb over the wires very readily, so that natural-built combs *can* be just as secure as those built from foundation.

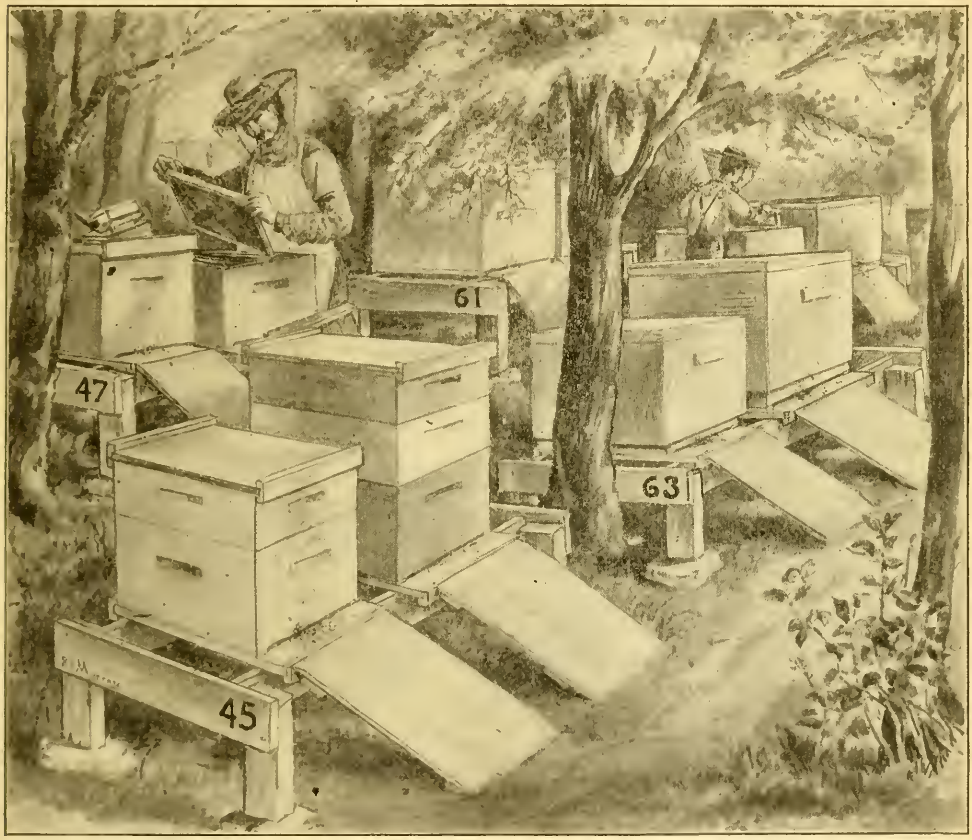
I can not imagine why any one should attempt to use combs of any kind unless they are wired. In buying up bees we get such combs; and to say that they are an intolerable nuisance is putting it very mildly indeed. They have to be handled just so or they will tumble out of the frames in hot weather.—ED.]

A CONVENIENT AND SERVICEABLE HIVE-STAND.

How it Works in Connection with a General System.

BY JOHN S. CALLBREATH.

I send you a sketch and measurements of the double hive-stand I have used since 1895. It is made of fencing, 7-inch boards, and 2×4's. It will hold two double-walled hives or three single-walled. It is a part of a system. I have all queens that are laying clipped, one hive of bees on each stand. When the colony swarms, I pick up the queen and cage her; and after putting the cage in a shady place, I *slide*, not lift, the hive to the other end of the stand. Place the empty hive in the place of the old hive; and when the swarm begins to come back to its old place, liberate the queen and swarm, and the queen will march into the new hive. If the bees are blacks or hybrids it may be necessary to cover the old hive over with a sheet or something to keep the returning field-bees from finding it and setting up a *call*, and so persuade a part of the swarm to go in with them. I usually cover up the old hive any way, to be on the safe side.



CALLBREATH'S HIVE-STAND IN USE, WITH ALIGHTING-BOARDS.

With clipped queens and double hive-stands it isn't necessary either to climb trees or *carry* heavy hives in order to hive the swarm on the old stand. A boy twelve years old can do the whole thing.

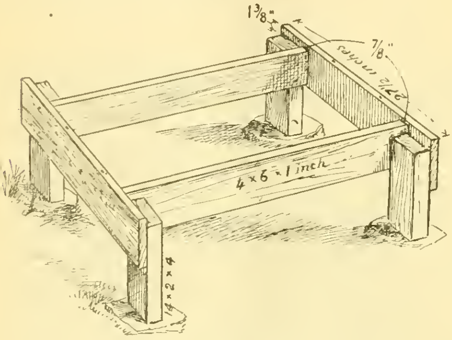
The double hive stand especially fits in with the forced-swarm method, as the bee-keeper can not only *slide* the old hive to a new stand (the other half), and so save the work of carrying it, but the old hive is in the handiest place possible for a second and third shake of the young bees in the old hive to the new swarm.

Why have the legs so large and on the *outside?* So that the stand is stronger and there is less danger of its being tipped over by frost heaving, etc. I had to learn that by a costly experience.

Why have the front and back pieces ½ inch higher than the top of the legs? So that the bottom-board of a single-walled hive can be slid clear up to the end-board.

Why have the end-board project above the front and back pieces? So that there is less danger of sliding the hive clear off. Also, sometimes in raising queens I have a *side* entrance for one part of the hive, and this end-board projecting up ⅞ inch makes a good alighting-board. The other part of the hive—separated by a division-board, of course—using the front of their half of the hive there is a *little* less danger of the queen's returning to the wrong half of the hive and getting killed.

To prevent the upper projecting edges of the ends frcm warping or splitting I drive two long slim nails (10*d*, cement-coated) into each one, as shown.



CALLBREATH'S HIVE-STAND.

Why have the stand so high — 14 in. plus ½ in. plus a flat stone under each leg? So that the hive will be dry, the entrances less likely to get stopped up in the winter when a thaw is followed by a sudden freeze, and so I don't have to stoop over so much when working at them. Such a stand is more expensive than four stakes driven into the ground, but it is more convenient. (I'd like to see some one drive stakes into certain parts of my yard.) It seems as though frost would heave the stakes, and perhaps let the hive drop down between.

In numbering I number the stands, not the hives — two numbers to each stand — the odd number on the back of the stand, and the even number on the front. That way the number of any hive can be told from either the front or back.

Rock Rift, N. Y., June 16.

MILLER'S CLOTH-PAPER HIVE-COVER.

A Good Cover.

BY ARTHUR C. MILLER.

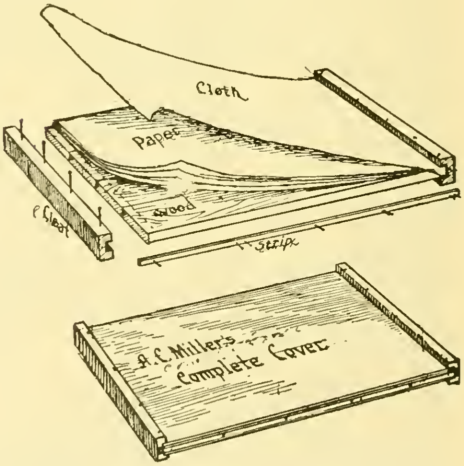
Here is a description of an improvement in hive-covers which I know is good. It can be applied to any style of cover, but is particularly adapted to flat ones.

On top of the cover lay four to six thicknesses of newspaper. Over this stretch one thickness of cotton cloth (cheese-cloth is too thin). To this apply a coat of thick flour paste, using a paste-brush for the purpose. This "sizes" and shrinks the cloth. When it is dry, apply two coats of thick paint. The newspaper serves the double purpose of a poor or "non-conductor," and prevents the cloth adhering to the cover, and wrinkling and cracking with the shrinking and swelling of the cover. In an attempt to get a simple flat cover which would not "twist" I have had some made of four strips, each four inches wide, and tongued and grooved together. The ends of these are held in grooved cleats after the well-known manner.

Before the cleats are put on, the paper is laid on top, and extends only *to* where the cleats will come, but folds over the two edges of the cover. The cloth is next drawn tightly over the cover from end to end, and the cleats forced on and nailed through from top to bottom. This binds the boards in tight. Then the cloth is drawn over the edges and held down by a narrow strip of wood. If such a cover twists I shall try two-inch strips.

The paper-cloth-paste-paint combination produces a sun-and-water-proof cover which takes but little paint, is quickly made, is light, and exceedingly cheap. Mine cost me just 11 cts. each, without the paint and nails.

The only thing in the foregoing which is in any way experimental is the narrow strips to get rid of the "twist." All the rest has been well tried, and is all and more than I have claimed for it.



Commercially such covers should find a big sale. I find that with such a covering I can use common ½-inch box lumber so long as it has no loose knots. End cleats are of clear pine of ⅞ thickness and 2 in. wide.

Providence, R. I., Apr. 29.

[This is very similar to one we have made and illustrated in one of our older catalogs, with the exception that the board was ⅞ inch; and instead of cloth for a top covering we used a heavy roofing paper. We considered this a good cover, and only abandoned it for one embodying the same principle shown as Fig. 402 in this year's catalog, made up of a double thickness of ⅜ boards, air-spaced between. Its outside appearance is exactly the same as the Miller cover.

Seven-eighths boards are bad enough to wind, but ⅝ would be a little bit worse. But lumber has become so scarce now that the time is shortly coming when bee-keepers who desire to make their own goods will have to buy up dry-goods boxes for material.

When Mr. Miller says his cover is a good one I am quite prepared to believe him.—Ed.]

TO KEEP EMPTY COMBS.

Seeking Darkness Rather than Light.

BY G. C. GREINER.

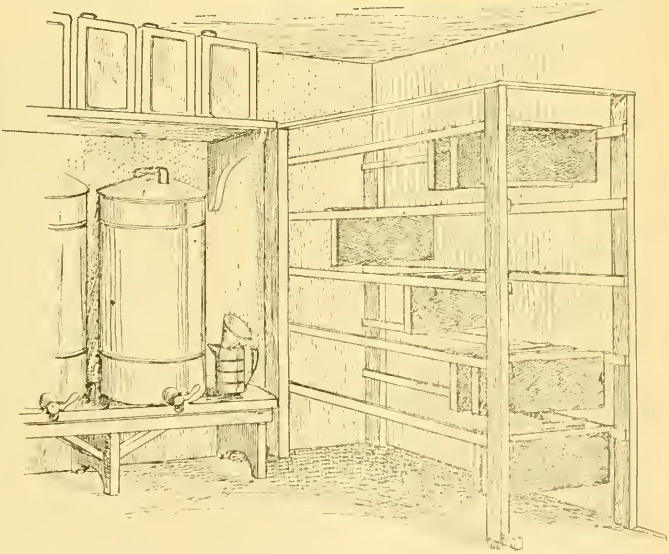
A writer from Pennsylvania inquires in Gleanings, May 15th, how to keep empty combs. The editor, in answering this question, gives the same plan I have practiced for many years. But for the last twelve or fifteen years I have kept my combs on a rack exposed to air and view, and I find it is less trouble, and a safer way to keep them, than to store them in moth and bee-proof receptacles. Even when we think that our combs are perfectly safe in our light comb-boxes, the first we know worms are at work among them.

I herewith give a diagram of the corner in my honey-house, with my comb-storage. The advantages of this arrangement are several. It takes very little material in comparison with tight boxes. If we have no strips or slats of proper dimensions, they can be picked up among the refuse of any saw-mill at little expense, or a little lumber (a basswood plank would do first rate) can be sawed into the desired shape at any mill in a few minutes. The shelves are all accessible from the end or front. We can handle the bottom row as well as the top one. No lifting is necessary as is the case when they are stored in boxes. There is no need of fumigating. Worms are very shy. They seek the dark rather than the light (for their deeds are evil), and this accounts for their persistency in managing to find an entrance into our moth-proof comb-boxes some way. They hardly ever trouble combs openly stored. It sometimes happens that combs hang so close together that they touch one another; then of course, forming a dark place, a few scattering worms may take possession of them. But when they do, it is easily detected. A glance of a few seconds reveals the state of affairs before any great harm can be done. To prevent any trouble of this kind, combs should not hang touching one another, but be moderately spaced, and the owner should give them an occasional glancing look when passing. If worms are at work, it can be readily seen by the webs among the combs.

It is very convenient, especially during the summer, to use certain shelves for certain kinds of combs. Some may contain extracting-combs, others brood-combs, and still other combs to patch up, etc. To have them sorted ready for use when we are in a hurry, and run to the honey-house for combs saves many annoyances.

The size of the material is not essential. I use 1½ × 2 in. for posts, and 1 × 2 in. for sides or shelves; any thing that is strong enough not to spring or bend will answer. Care should be taken in arranging the spaces. They should be all alike and just right, allowing the frames to slide free, and not have too much play. The posts are all fastened to the wall except the front near one which is connected at the top with its mate.

The tanks on the left contain about 150 lbs. each; when one is being filled the contents of the other is settling, and drawn off into 60-lb. square cans. The structure is somewhat out of proportion. Five shelves could occupy the space of three. Two inches in the clear between the combs is sufficient.



La Salle, N. Y.

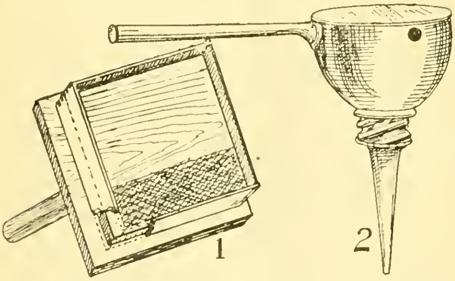
[A good many of the practical bee-keepers store their combs exactly the way you describe in your illustration. It is a fact that exposure to light will tend strongly to deter the work of the moth-worm. Keeping the combs one inch apart where the light can shine upon them is good in theory and excellent in practice. If a room of this kind is fumigated the combs will be kept doubly secure.—Ed.]

Heads of Grain
from different fields

YOUNG'S SPRING-TOP OIL-CAN FOUNDATION-FASTENER.

I have made a little device I use in fastening foundation in sections, which I think is a little ahead of any arrangement that I have ever before tried for doing good and neat work. I think it might be properly called a hod or bee-keeper section-hod, as it much resembles that tool a plasterer uses to put his mortar on. It is made as follows: Take a ⅜-inch board; saw off a piece the size of your section, then nail it to the end of a round stick through the center of the board for a handle (the top end of an old broomstick makes a good one); then cut a block a trifle less than the inside measure of the section, and a little less than half its depth, allowing for half the thickness of the foundation; then nail it to the other piece.

I have remodeled a small oil-can that I use for pouring melted wax.



As to the oil-can, just get a tinner to solder a handle to the side, similar to a small dipper-handle; punch a good-sized hole on top of the side, as shown in the cut, and it is ready.

I melt wax in a small tin pail, and enough of it so I can sink the oil-can in it, and let it fill up through the hole in the side or top. Use nothing but clean wax free from sediment, then it will run fast enough through the small tube. I fix a small rack in the top of the pail to lay the can on, to let it drip off a moment when first taking it out of the melted wax. This you can do by punching a few holes about an inch below the rim of the pail, and about one-third around, and weave in some fine wire.

Now for the work. Slip the section on over the block; lay in the piece of foundation; press it close to the section, then pour on the melted wax along the edge of foundation. If you want to see what a nice little strip of wax you can get in the center of the section across the bottom or up the sides, which I think will be quite an inducement to the bees to attach their comb to the sides and bottom of the section, keep right on pouring the wax in the corner on the bare block, always commencing at the upper corner; pour on a drop or two, then let it run as far as it will before putting on more. This hod, as I call it, you can hold and turn at any angle that suits you; but you must keep the face of it wet by dipping in water in order to have the wax slip loose, and leave it sticking to the section; and when pouring the wax on, you must reach up with your fingers and hold the side of the section close to the block to keep the wax from running through. See that your sections are folded square; press them to shape while corners are yet damp; cut foundation in the miter-box, then you will be enabled to fasten the top and one side. I cut mine diagonal, using a half-sheet fastened in one corner.

Now, Mr. Editor, I should like to have you or some of your help make and test one of them before you publish this. Do not use a wax tube if it works as poorly as mine does, for this work. Keep your work to the right, where you can do the reaching with the right hand, holding the hod in the left. N. YOUNG.

Robertson, Ia.

[Your plan of a little hod that can be twirled in the hand offers a special advantage in fastening foundation to the top and one side; but when the wax is so fastened, are you not liable to have trouble when the section goes into the super? If I mistake not, the foundation will be inclined to buckle or warp if the section is crowded in the super so as to throw it a little out of square. The scheme of fastening to the end as well as the top has never been practical so far as I know. Our British cousins have used sections grooved on top and sides, slipping the foundation into the grooves; but even then one would have to work very carefully or his foundation would be bulged. If it would be practicable to have the wax fastened on three sides we should get plumper and prettier sections.—ED.]

RHEUMATISM FROM TOO MANY STINGS.

I have had a long spell of rheumatism, and haven't been able to do any thing this summer. The doctor says it is from getting so many bee-stings. What do you think about it? I have been working in bees steady in the summer for four or five years, from a few stands to 250, besides transferring and working with other people's bees all over the country, and I never wear any veil, and, of course, I get lots of stings. S. M. CAMPBELL.

Mountainburg, Ark.

[I have never heard of a case where bee-stings were alleged as the cause of rheumatism; but there have been scores of reports where the poison from the bee has actually cured that disease, and in many cases where it has been of great relief. I do not know any thing about your doctor; but I can not for one moment believe he is right. If you ask the average physician he will tell you that bee-stings will have nothing to do with causing disease, but that they may mitigate it somewhat. Your trouble may be due to some other cause. Perhaps when you are among the bees you catch cold, with the result that the symptoms are aggravated somewhat. I certainly should advise you to begin wearing a veil — not because it will make your rheumatism better or worse, but because too many stings may injure you other ways.—Ed.]

BEES NOT INCLINED TO WORK ON FOUNDATION BELOW.

Early this spring I bought two colonies of black bees in L. hives, but comb was built so crooked I could not get the queen out to put in an Italian without cutting the comb to pieces; so put another brood-chamber below them with frames filled with foundation, thinking they would work down on to lower frames, and then I could find the queen and remove her. Well, seeing they were very strong I went yesterday into the hive, thinking I could find her, and found they had not touched or drawn out the foundation in the lower box, though very much crowded in the upper one. I was planning, as soon as they had another queen, to drive them from the upper box, when to-day they started to swarm out, and had been gone; but I happened to see them in time to flood with water, and stop them. Now, is not that a rather strange result? I felt sure, as they needed space, they would work down in the bottom box; but actually they have never touched the foundation sheets, so far as working them out is concerned. The fact that they swarmed shows I am not mistaken in thinking that there was an abundance of bees and honey.

Paducah, Ky., June 8. W. M. Janes.

[You made the mistake of putting your foundation *under* the general brood-nest. I should hardly expect the bees to go below to draw it out, even if the brood apartment above were crowded. If you had put it above, the results might have been very different. In order to draw out combs, the compartment or super should be very warm; as heat naturally rises, comb-building progresses best in the top of the hive. You may set it down as a rule that bees will not generally leave a brood-nest above to go into an empty space below, even though that brood-nest is crowded for room.—Ed.]

[A copy of the foregoing was sent to Mr. Janes, who writes further:]

Yes, I see the mistake made, but was trying to get the black queen off the crooked comb to where I could get hold of her. But I can give something which is not a mistake, and may be made useful as I have been doing. Old strong colonies can be made to work out as much new all-worker comb from starters as is wanted — no uncertainty as to drone comb involved — by simply putting an empty box with starters *below*, except one straight comb for the queen to start on, putting *her below*, with excluding zinc above her. This gives all storage comb above that the bees need, and they will make comb below only as the queen presses them for it, and every cell will be worker. I find this works every time without any regard to age of queen, size of colony, or other conditions, and they at once begin to make what she needs too. Extracting and comb-building can be run together thus very successfully, and no drone comb made. W. M. Janes.

Paducah, Ky., June 29.

[Yes, this plan will work when the bees will go below; but usually they will swarm if honey is coming in slowly. When it comes in more rapidly, and swarming has ceased, as it does in some localities, then the bees will, of course, work downward and build worker comb.—Ed.]

BEES DYING IN IDAHO; IS IT POISON OR WHAT?

Please tell, if you can, the cause of my bees dying. They were put in a cellar all winter, and wintered very well. They seemed to be very healthy for about three weeks after they were brought out, and then they began dying off. They acted just as if they were freezing, although the weather was warm, and they had been out working for two weeks at least. They would fly out, sit on the edge of the hive for a few minutes, then fall off dead, until they all died. I lost 14 stands in about one month and a half. They certainly did not starve, for the hives were two-thirds full of honey, all ten-frame hives. I, however, am not the only one who has lost bees. One of my neighbors has lost over 100 colonies; another neighbor has lost 38 and one 60. Nearly every one has lost his bees, and they all seemed to act nearly the same as mine did. Owing to the loss of so many bees, a very poor honey crop is predicted this year. Alfalfa is just going into bloom.

George H. Smith.

Poplar, Idaho, June 16.

[Your question is a hard one to answer. I first thought it might be poison that the bees had gathered from fruit-trees that had been sprayed while in bloom; but if that were the case the trouble would disappear as soon as the spraying ceased. But from what you write I judge that the malady, whatever it is, is apparently going on with its destructive work. If so, the only thing I can suggest is bee-paralysis. The bees will behave somewhat as you describe, but I never knew this disease to be very serious in the North. A paralytic bee has a black, shiny, greasy appearance; its abdomen is considerably swollen; the bee will have a trembling motion, and will crawl into the grass from the entrance, and die. If it is crushed, there will be a transparent, slightly yellow fluid from it as if it were in the nature of dropsy in the human family. I should be glad to hear from some of our subscribers, and also to receive specimens of the dead bees. It may be a new disease.—Ed.]

QUESTIONS ABOUT SHAKEN SWARMS.

I had two colonies of bees that swarmed one day apart. I hived them in separate hives, shook the bees off the combs of each old colony in front of each new hive, leaving enough bees in the old hive to take care of the brood. Eleven days later I repeated the shaking with the one, and ten days later with the other; twenty-one days from the time they swarmed I shook all the bees off the combs in front of the new hive of the one colony; the other, twenty days from the time they swarmed. About 1000 bees went back into the old hive of the one colony, and about 2000 bees went back into the old hive of the other colony. Five days after the last shaking I shook the remaining bees from each old hive in front of each new hive. The one with about 1000 bees, as nearly as I could see, killed them all. The one with about 2000 bees I could not see that they killed any. Would you please inform me why those two colonies of bees acted so differently, as there was only one day's difference in swarming? I can't see why they acted so differently unless it was that the one that killed the bees had the old queen, and the other the young queen.

L. H. Lindemuth.

Lehmaster, Pa., May 26.

[This was referred to Mr. L. Stachelhausen, who replies. He is possibly the best-posted bee-keeper on the subject of shaken swarms in the United States.—Ed.]

I see that, 20 and 21 days after swarming, you shook all the bees from the old hives in front of the swarms; but in one case 1000 and in the other case about 2000 of the bees returned to the old hives. Right here is something I do not understand — 21 days after swarming, all the worker brood has hatched; and if all the bees are shaken in front of the swarms, you have broodless combs, nothing else. What is the reason for keeping them on the old stand? I would remove the old hive entirely, and use the combs somewhere else. If some of the field-bees would return they would find the old hive gone, and try to enter one of the neighboring hives, and they will be accepted if they have their honey-sac filled.

Now, you say that you have shaken these few bees in front of the swarm 5 days afterward. In one case they were nearly all killed; in the other case none were killed, and you want to know *why* this difference.

It is always difficult to explain some things if we do not know all the circumstances. Two different explanations are possible.

1. Field-bees with an empty honey-stomach, if introduced to another colony, are generally killed; but if they come back from the field with a load, and try to enter a wrong hive, they are not molested at all. In the one case Mr. L. may have disturbed the bees sufficiently, which caused the bees to fill themselves with honey, and they were accepted. In the other case they probably could not do so, for some reason unknown to me, and were killed.

2. Whether the swarm had an old or a young queen will make no difference, I think, in this respect; but something else is to be considered. Bees of an after-swarm can hardly be united with a colony having a fertile queen. It seems that the bees see the danger that a young virgin queen may kill the old fertile mother. On the other hand, queenless bees are generally accepted. This may explain Mr. L.'s case in another way. If with the 1000 bees there was some kind of virgin queen it is not astonishing that they all were killed by the colony having a young or old fertile queen; and if among the 2000 bees no queen at all was present, and they had full honey-sacs, they were accepted all right.

L. Stachelhausen.

Converse, Texas.

THE UPPER-STORY PLAN OF SUPERSEDING QUEENS.

Doolittle in his books on queen-rearing, which I have translated into German (and published), says on page 111, second edition: "If you desire to supersede any queen, etc., all you have to do is to put on an upper story with a queen-excluding honey-board under it; place a frame of brood with a queen-cell upon it, in this upper story; and after the young queen has hatched, withdraw the queen-excluder, and your old queen is superseded without your even having to find her, or having the least bit of time wasted to the colony.

Concerning this method I have found no mention made of it in your A B C. Pray tell why. Is it practically worthless? or have you mentioned it in the A B C? I should be very grateful if you would be so kind as to answer my question.

A. Strauli.

Scherzingen, Switzerland, Jan. 29.

[The item you refer to in Doolittle's book is one among several good things found therein; but, from the nature of our work, we were able to give only extracts or brief sketches of some of the methods referred to in his excellent work. For that reason we did not include the part you refer to. As to the plan itself, I have not tested it, and therefore referred it to Mr. Doolittle, who replies.—Ed.]

The plan Mr. Strauli asks about worked perfectly in all trials before the book was published; but since, when bees were inclined to rob, as no nectar was coming from the fields, it has sometimes failed.

I find bees are very "freaky" things, and every little while they will upset rules that have worked for 10, 15, or 20 years —

kill queens, refuse to build worker comb, and even fail to build queen-cells on larvæ given when queenless; yes, and swarm without any queen at all. I feel often, of *late*, like saying, "I don't know," with Dr. Miller. G. M. DOOLITTLE.

Borodino, N. Y., June 16.

[We did try, come to think of it, something similar — raising cells in upper stories over perforated zinc. It worked during a honey-flow, but not after.—ED.]

THE POISONOUS FUMES OF THE HIVE; KEEPING HONEY IN TIN CANS.

I read of persons being poisoned by gases from hives. I think this can be remedied by uncovering for a while the hive to be manipulated, before one works it. This will allow the ventilation of the hive, which carries off most of the gas.

Please let me know if keeping honey in a common tin Novice extractor for a long time will injure it, say two months.

ALBERT D. WARNER.

Warsaw, Va., June 13.

[There is only about one person in fifty thousand who is at all affected by the fumes of bee-sting poison from a strong colony. Leaving the hive open for a few minutes might possibly allow the vapor or gas to pass off. But if one is so sensitive to the poison as this, ventilation probably would not help very much. In cool weather, when a hive is open bees will elevate their stings; and if you watch closely you will see a tiny drop of the poison on the end. If there is a pungent odor given off from this poison, the mere matter of ventilating possibly might disperse it some.

Honey can be kept in tin vessels for a great length of time. It prevents corrosion of the metal, and the honey itself will keep indefinitely.—ED.]

ARTIFICIAL PASTURAGE.

I have been keeping bees for four years and have never been able to have them make any surplus of any kind. During this time I have studied the trouble thoroughly, and have decided that it is in the pasture, so I will have to plant some or quit bee-keeping. I should like to have you give me some information on the subject of pasture for this section. I don't know of clover being grown within one hundred miles of me, and the people say it won't grow here. What shall I plant? W. H. PATRICK.

Bamberg, S. C.

[There is no artificial pasturage that will pay you just for bees alone. You would have to put out hundreds of acres, and even then you might not get enough to supply the bees with any more than their daily consumption. If there is not natural pasturage sufficient to give your bees a surplus from year to year, and that is a condition that is very unusual in the case of a few colonies, you had better give up bee-keeping as a business.—ED.]

FORMALDEHYDE FOR BEE-MOTH.

After reading the articles in GLEANINGS on the use of formaldehyde gas for the treatment of foul brood, it occurs to me that the eggs of the bee-moth might be treated in the same way. But in making the gas strong enough to kill the worms, would not the larvæ and eggs of the bee be destroyed at the same time? W. L. SHORT.

Vicksburg, Miss., June 12.

[What would kill the one would kill the other, undoubtedly; but as long as there is eggs in the combs they would, of course, be in the custody of the bees. If they had any Italian blood in them there would be no danger from worms. The only combs that would require fumigating would be those that were empty or out of the care and keeping of the bees. As a matter of precaution it would be good policy to fumigate with the formaldehyde all combs in the fall of the year. This would disinfect them of foul brood as well as kill any eggs of the moth-miller that might be in them.—ED.]

GLEANINGS SATISFACTORY AS IT IS.

I notice the criticism on pages 552, 553, regarding advertisements in GLEANINGS, especially numbering the advertisement pages and keeping them separate; but I should be very sorry to see it done. I also save the copies, putting them together as soon as I get them, having them bound at the end of the year. *But I want the advertisements bound with them* so that I may have them also to refer to.

I like GLEANINGS very much. I took it eight months before I got my bees. I hardly know which part I enjoy most, from Stray Straws to the notes by A. I. R.; but I think those two are excellent, and I should miss either of them very much. I also enjoyed the writings of Rambler, and it seemed like the loss of a personal friend when I heard of his death.

I think GLEANINGS is about perfection, and that you understand both the bee business and running a bee-paper

STEPHEN J. GRIFFEN.

Bridgeport, Conn., June 19.

PICKING UP QUEENS TO CLIP.

I was much amused at the description given in GLEANINGS, of catching and holding a queen to clip. Why not lift her at once with the thumb and fore finger by the thorax, and as you raise her from the comb pass the middle finger under her, removing the index finger? then you have her in about the position you describe, thus avoiding not only the delay of transferring the queen from one hand to the other, but of lifting the scissors, which, with this method, are placed in the right hand in position before the queen is lifted. Some years ago I caught her between the finger and thumb, and left her on the comb while clipping; but I found it necessary quite often to wait for her to withdraw a leg from between the scissors; and I found by lifting her from the comb this difficulty was entirely avoided as you so nicely describe.

London, Can., June 5. F. J. Miller.

[But it seems to me your plan is more awkward, and more liable to do injury to the queen, than the one that I described. A beginner (and it was to that class I was writing) could do better work by using his right hand. When one attempts any thing of this kind for the *first time* he should use that hand (probably the right) that is the most natural and easy for him. The transfer from one hand to the other is but the work of a moment; and, really, *time* should cut no figure in this. It is a question of safety to the queen. The average person, even if he were a bee-keeper of some years' experience, might do bungling work with his left hand.—Ed.]

DO BEES COVER OFFENDING OBJECTS WITH WAX OR PROPOLIS?

While in conversation this morning with several friends, the matter of bees came up for discussion. I was reading Gleanings, and a gentleman to whom you have sent several sample copies was commenting on its merits. It was remarked by one of the party that bees would cover any foreign object which might get in the hive — say, for instance, if a mouse got into the hive and died, the bees would cover it with a coating of wax, thus virtually hermetically sealing it in a case from which no odor could arise. I have in my experience had a mouse in the hives several times, but never a dead one (he died soon after I discovered him). Did this matter ever come to your notice? and is it so that the bees will cover an object with wax as stated? This might be of interest to others. C. L. Sniffen.

Spring Valley, N. Y., June 11.

[It is quite true that bees will cover any foreign object which they can not remove, with wax or propolis. They have been known to cover up a thing as large as a beetle; but it is doubtful if they would attempt to cover a dead mouse. If his little carcass became too offensive the bees might swarm out. I do not know what they would do.—Ed.]

PLURALITY OF EGGS IN A CELL.

I send you by a separate package a small piece of drone comb which, you will notice, has more than its share of eggs. This queen was raised by me, and this is her first work. She laid two frames and a half full, clear to the edge of the frames.

Floyd L. Eddy.

Santa Barbara, Cal.

[The comb was examined, and as you say contained a large number of eggs in each cell. This is probably the work of a drone-layer or laying workers. A good queen, however, sometimes when she begins laying will lay more than one egg in a cell; or sometimes a normal queen that has too small an amount of comb will do the same. But in your case I should say you had either a drone-layer or laying workers, either of which should be destroyed.—Ed.]

QUEENS BITING INSTEAD OF STINGING.

I noticed a short article on page 550, about queens stinging human beings. It was only a few days ago that I helped a queen out of her cell and allowed her to crawl up my arm. She gave me (what I thought to be) a *bite* and not a sting as reported by the correspondent. As her movement was very slow, and watching her intently, I feel sure of the source of the pain. W. G. Rice.

Champaign, Ill., June, 18.

[As before stated, it is only rare that queens sting human beings. They are more apt to bite, under certain provocation.—Ed.]

THE YELLOW BANDS IN ITALIANS.

I should like to ask a question of Ernest and call Dr. Miller's attention to it. If the yellow bands we so much admire are yellow because of the fluid back of them, then the fluid in the black bees and the gray Carniolans must be a different color. Not being a scientist myself, I should like to have you explain that in Gleanings, if not too much trouble. W. Bowling.

Stratford, Ont., Canada.

[The corresponding bands in the blacks are opaque, not transparent, as in Italians. The fluids are the same in both.—Ed.]

FORMIC ACID IN HONEY.

Can you tell me whether catnip honey has more formic acid than alfalfa honey or than other honeys? Roy A. Wilson.

Kearney, Neb., June 15.

[I do not know that it has been definitely proven, although that seems to be the general assumption, that formic acid does exist in honey. I should not suppose that there was more in one source of honey than in any other.—Ed.]

CANVAS LEGGINGS FOR KEEPING BEES OUT OF THE TROUSERS.

Say to Dr. Miller, try a pair of light canvas leggings for keeping bees out of the trousers, and note the improvement.

C. E. Woodward.

Punta Brava, Cuba.

Where is the queen generally located in a cluster of bees after they have swarmed and alighted on a tree or bush?

Wabuska, Nev. J. G. Young.

[The queen-bee in a cluster is generally on the outside.—Ed.]

OUR HOMES,

BY A. I. ROOT.

Charity is not easily provoked; thinketh no evil; . . . believeth all things, hopeth all things.—I. Cor. 13:5, 7.

When my thousand bushels of potatoes were ready to harvest last fall, I was a great deal worried about the amount it was going to cost me to get them to Medina. To haul them by wagon over the hills to the nearest railway station would cost between $50 and $100; but at the foot of the long hill on the edge of the bay there was a dock where vessels of various kinds stopped to get lumber, and I could get the potatoes down there at very little expense, because it was all the way down hill. Then the question was to get the steamer to stop there and take them on and carry them around by the "Soo" to Cleveland. I presented the matter to the Northern Michigan Transportation Co., whose agent was at Traverse City; and after presenting the matter to the general freight agent of the company he said they would take my potatoes from the Bingham dock and turn them over to the railway company at Cleveland at 12 cents per 100 lbs.; but they said I must have a carload or more piled up on the dock as an inducement for the steamer to stop and take them on. The plan was carried out without any trouble, and my potatoes were delivered at our potato-cellars in Medina at a cost of about 13 or 14 cents a bushel. But our people here in Medina notified me that the railroad company demanded an overcharge of something like $20. I suppose our friends are aware that, to facilitate business, these overcharges are always paid; that the railroad company agrees to look into all matters of this kind; and where the money received is not according to agreement, or more than the agreement, they will pay it back. This method of doing business has been severely criticised, especially by the farming community, and on this account I wish to take a little space right here to defend the railroads and the great navigation companies.

In all kinds of business where the owner or owners can not be right on hand to decide in regard to difficult questions, it is pretty generally agreed that the best way, and, in fact, almost the *only* way, is to pay the charges and adjust the differences afterward. For instance, if you are traveling on a railway, and there is something wrong about your ticket, you can pay your fare, and the railroad company will refund the money afterward—that is, if you are in the right and the conductor is in the wrong. In the nature of things, the railroad companies can not give their conductors unlimited discretionary powers.

A few months ago I sent Mrs. Root's ticket to the headquarters of the Pere Marquette railway to have the time extended. Before the ticket got back, however, we had notice that my mother was near death. Of course, we could not wait for the return of the ticket, so I paid my wife's fare from Traverse City to Toledo. I supposed at the time and under the circumstances I should be out of pocket. I thought, however, I would present the matter to the general passenger agent; and I confess I was a little surprised when my $8.25 came back promptly. You see I could not tell the agent at Traverse City about my ticket that had not got back, for he would not know any thing about it, and it was no affair of his any way.

At another time we just managed to catch a train. Mrs. Root had a return ticket, reading plainly that it would have to be stamped at the ticket-office before it could be used on the return trip. I knew we had neglected to comply with their regulations, and I supposed I would have to pay the fare; but they managed it so my failure to comply did not cost me any thing, but it made them some trouble.

By the way, perhaps I might remark right here that a friend of mine who is a railroad man said I must not jump to the conclusion that *all* railway companies are as accommodating as the Pere Marquette. He said he honestly believed they gave their passengers more for their money than almost any other railway company. But this is aside from the subject we are considering.

There are a great many iron-clad rules about traveling that seem to us unnecessary; but where railroad companies employ thousands of people, and sometimes almost a thousand miles away from headquarters, they have got to exercise great care to prevent dishonesty, or, perhaps we might say, to avoid leaving things in such shape as to *encourage* dishonesty. And this is why we are told again and again that, where there are differences between yourself and the conductor or the freight agent, as the case may be, the better way is to pay the bill, then put in your claim and have the matter adjusted afterward. And just here comes in the thought that this adjuster of all these differences should be a very wise, sharp, and keen man. People often present claims to the railroad and transportation companies that are preposterous; and several times I have known of claims being paid where I thought the adjuster was almost throwing away the money of his company. Let us now go back to the potato deal, if you please.

As soon as I learned of the overcharge on my potatoes, I put in a claim for my $20. After some weeks had passed, I became a little uneasy about it; but Mr. Calvert and Mr. Boyden, who have these matters in charge, jokingly told me if the transportation companies got around to it in a year they would do well. Of course, you know that I have in years past had quite a large experience in collecting claims myself, and I said if they were followed up properly it need not take a year, nor any thing like it.

So I commenced sending claim after claim for the overcharge on the potatoes. I told them that, if our claim was not just and right, they should let us know wherein we were not entitled to it. I shall have to confess that it was about six months after the transaction that I got any reply. Then the general freight agent at Baltimore wrote us he had just been informed by the general freight agent of the Cleveland and Detroit Transportation Co. that my shipment did not originate at Traverse City but at Bingham, and therefore my demand for overcharge was declined.

May be you think that, since A. I. Root has been largely relieved from the cares of business, and left by himself out in the woods to cultivate a Christian character, he is always genial and kind, and does not get stirred up. Well, you are a little mistaken. When I found these people had waited six months while I had been telling my story over and over again, and then declared they would not pay me a cent because my potatoes were not hauled to Traverse City to put them on the steamer, I felt like fighting. May be you have had some such experience. I did not care particularly for the $20 ; but when I had the figures in plain black and white, to be turned off in this shape I could not rest. It was the principle of the thing more than the amount of money at stake. I stated the case to a good many people who had had experience in such matters. I talked with the railway men about it, and said, "What are these general freight agents of the large railroad companies employed for? Is it to see that justice and fairness are done in every transaction? or is it to get out of paying any and every claim against their respective companies by some hook or crook or technicality?"

Most of the business men to whom I presented the matter laughed at the way I presented it; but pretty much all of them declared that the general freight agent earned his salary by saving the money of the company that employed him. I remonstrated again and said:

"But these transportation men are working hard to get trade. Almost all of them have strong competition. They are trying to turn trade into the hands of their companies. They are especially anxious to get carload orders like my two carloads of potatoes. Such transactions as the one I have mentioned would not advertise their business. Do not railroad companies try to treat their customers in such a way that they will come to them again?"

One man, who ought to know about these things, replied:

"Why, Mr. Root, if you have some more potatoes to ship, that fact may have some weight in getting them to return the overcharge."

Now, friends, as I have said before, most of you have had some experience in this kind of business. I am afraid the greater part of you have fallen into the fashion of saying that "railroad corporations have no souls, and it will cost more to collect the overcharge than it is worth. If you go to law about it, they have their own lawyers who work on a salary. It would not cost them any more to have these lawyers at work at something than to have them sitting idle; better drop it and lose it the way we do."

To all of this I want to say, God forbid. I have met a few men in high positions who were overbearing, and lacking in conscience; but may God be praised it is only a few.

When I went back to Traverse City after the transaction just mentioned, I decided to call on the agent of the Northern Michigan Transportation Co., Mr. Elwyn H. Pope. He is the man who gave me the rates, and the one who directed the steamer to call at Bingham dock, and who also gave me a letter to hand to the clerk on the steamer, mentioning the rate they had agreed to give me. I had in my possession the agreement to move the potatoes from Traverse City to Cleveland, but, unfortunately, I did not have a scrap of any thing to prove that the potatoes were to be taken off Bingham dock *at the same price.* I gave the only piece of paper, mentioning this, to the purser on the boat. He kept it as his authority for stopping at the dock for my potatoes.

I was so busy in planting potatoes in June that it was two or three weeks before I got up to Traverse City to see the agent. During these two or three weeks I kept asking myself the question, "Will Mr. Pope make his verbal agreement as good as the written one I hold?" Quite a few assured me that, when he knew just how I was fixed, he would stand in first for his company, and let me lose my $20. The agent seemed such a bright, fair, honest man when I talked with him a year ago that I could not believe it for a moment. Yes, friends, the matter not only weighed on my mind, but I prayed over it. I prayed that God would help me to hold fast, not only to my faith in him, but in humanity. I prayed for that great and wonderful gift of charity—the charity that seeketh not her own, is not easily provoked, and thinketh no evil. You know I am naturally hopeful. I have faith and hope in poor imperfect humanity. I prayed for that charity that "hopeth all things" as well as "endureth all things."

When Mrs. Root and I got ready to go back, our train was late and we had only about fifteen minutes to get from one depot to another. If I did not catch that train I would have to stay in Traverse City all that afternoon, with nothing to do. I put Mrs. Root in a bus with the baggage, and then I ran over to the wharf where the steamers stop. Mr. Pope was busy superintending the unloading of a steamer. He put his finger on the paper where he was writing, looked up, and I was keenly trying to read the man meanwhile to see if I had been mistaken in him. He did not remember me at first, but finally he gave me a pleasant smile, and said, "Oh, yes! this is Mr. Root, the man who gave us some potatoes to ship."

Then I told him I had only twelve minutes to spare, and that if he could spare about three minutes he could help me catch the train. I had my letter in my hand, where they declined rebating the $20 because the potatoes were not taken on at Traverse City. His reply was something like this:

"Why, this is ridiculous. I told you the potatoes would be taken from the Bingham dock at the same price. I told the clerk on the boat what the agreement was, and I gave you a note to hand to him to that effect."

Oh what a weight was lifted at once from my heart!—a weight that had rested there long weeks, because I feared—do you know what I feared? I feared to have another evidence of the weakness and frailty and *corruption* of humanity. May be you know something about how it hurts to have somebody you have relied on—somebody you have felt glad to know—turn traitor. My convictions of the previous year in regard to Mr. Pope were right. He may not be a Christian, although I hope he is; but he is a true man—one of God's noblemen. I told him my anxiety to catch that train, and he replied that, if I would leave the letters with him, he would make the matter all straight. He said he could not believe the matter had ever been presented to his company at all; that the agent of the Cleveland and Detroit Transportation Co. had simply got far enough to discover the potatoes were taken on at Bingham dock, and had refused the claim without any further investigation. He furthermore said if I had any more potatoes to ship they would take them at the price given last year, and he would stand by me, and see that they did not get in any overcharge.

Some of you may suggest that I have not yet got my money, and that may be I shall not get it after all. But I think I shall. I believe if this whole matter could be presented to the heads of our great transportation companies they would say at once that they employ agents at good salaries to be fair and just to every customer of theirs, whether he be high or low, rich or poor, black or white; and that the insinuation that they employ men to "wiggle out" of a just claim is untrue. God grant that it may be so. There are men in public office who have no conscience and no scruple; but such men will not only steal *for* their employers, but they will very soon, if they do not already, steal *from* them. They will be found out and dismissed, just as our great nation now while I write is ferreting out and dismissing and sending to prison those who make a bad use of the positions that have been given to them. God forbid that corruption, especially in high places, should be the rule; and may God grant that we as individuals may each and every one of us try not only to be honest and fair toward all, but that we may be cultivating that little virtue embodied in our text, that bids us not only have faith in God but faith in our fellow-men, and be striving to hold constantly before us that grand virtue that "thinketh no evil."

HIGH PRESSURE GARDENING

BY A. I. ROOT

THE NEWER STRAWBERRIES.

On p. 555, June 15th issue, I spoke of the newer strawberries we are testing. When Mrs. Root and I reached our "cabin," June 18th, they were just beginning to ripen. As there had been no rain for fully three weeks, the plants with their great loads of fruit were suffering, and some of them were considerably wilted, both berries and foliage. Mrs. R. thought it was too bad; but I said:

"No! it is just right. I can now tell which of the twelve kinds will stand up best under drouth."

Among the twelve there is one for which great claims are made in regard to standing dry weather. See the following from the originator:

> We are having the hottest and driest weather here ever known. No rain yet, and the thermometer registering from 110 to 114 for the past week. All varieties of strawberries on my place have to be watered and shaded except Challenge. It is the most wonderful drouth-resister I have ever seen.

We were hardly out of the buggy when I asked Mrs. R. to take a look at the twelve kinds, and tell me which one was standing the drouth best. Without knowing their names she pointed out the Challenge at once. The leaves, as well as the fruit, were immense in size — not a spot of rust, and not a wilted leaf. It may be, however, that this is partly because it does not make many plants, hence each plant has more room than in many of the other rows; besides, the fruit does not lie in heaps as it often does with such varieties as Warfield and Haverland, and those of that type.

The next to it, as a drouth-resister, is "Uncle Jim," introduced by Flansburg & Peirson, Leslie, Michigan. This, too, is a strong vigorous grower, and bears immense berries; but while the shape and color are not as good as Challenge, the berries are as sweet as the Sharpless. Even when they are mottled with white they are sweet enough for me without any sugar. Like the Gandy, however, while some of the plants have great loads of berries others have few or none. Uncle Jim, like Challenge, makes only a few plants; and if one wants extra large berries, even if there are not so many, this may be a good fault.

August Luther is much like Michel's Early — sends out lots of runners, makes lots of plants, and gives a great lot of berries very early; good shape and color, but not very large.

Lyon much resembles the Warfield, but the berries are longer, rather sweeter and larger, especially if the plants are thinned out and not allowed to stand as thickly in the row as they grew. Both of these last two make so many plants that the matted row must be thinned out; and if they are to ripen the great mass of berries they set, they must have rich soil, and water during a drouth.

Senator Dunlap is the greatest plant to send out runners and make plants, I think, that I ever saw. It was the outside row nearest the top of the hill; and this was lucky, as it climbed the hill like a squash-vine, starting vigorous plants all along the way; and even in this thickly matted bed (it isn't a "row") it is giving us beautiful berries, some of them of good size, and, best of all, when fully ripe, of exquisite sweetness and flavor, something like the best specimens of wild strawberries.

As I write, we have just had a gentle rain for 24 hours, and strawberries and every thing else are just looking glorious this 24th day of June. Our peach-trees among the crimson clover, and, in fact, all over the hill where the woods were cleared off, are making such a growth I have to stake them or the wind will break the tops off, they are so heavy with new foliage.

About the handsomest tree on our place is an Acme apricot. Its perfect glossy-green leaves, contrasting with the glossy blood-red twigs and leaf-stems, make it about as handsome a tree as I ever saw anywhere; and when we consider the handsome fruit, ripening before early peaches, I do not see why it is not more grown.

My neighbor Hilbert said they grew some years ago; but when they took them to town the merchants said folks wouldn't buy them, because they "didn't know what they were." We had a few last year, and shall have more this season; and I call them, as grown here, about the finest fruit I ever tasted. So far no insect or disease has harmed either the trees or the fruit.

HEALTH NOTES

BY

A. I. ROOT

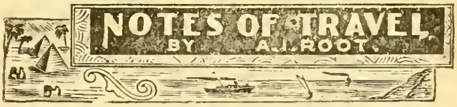
RENDER UNTO CÆSAR THE THINGS THAT ARE CÆSAR'S, AND UNTO GOD THE THINGS THAT ARE GOD'S, ETC.

Several years ago a friend of mine, Mr. Geo. A. Root, spoke to me about a low-priced outfit so that people, especially those in rural districts, away from a shoemaker, could repair their own shoes. We had quite a little talk about it. In 1892 he had a booklet printed at our place, describing this repair outfit for footwear. On the cover of the book there was the print of a shoe that looked as if somebody with wet feet had stepped on the book and left an imprint. Right under it were the words, "Somebody has been stepping on my book." I remember there was a good deal of merriment about it, and people picked it up and looked it through just because of this joke on the cover. He started in a small way to make this shoe-repairing outfit. Friend Root is a sort of eccentric inventor — perhaps something like myself. I think he never got out a patent; but the thing seemed to fill a public want, and quite a business was soon started. You may remember seeing the advertisements in the papers of "Root's repairing outfit." Well, I am not writing up the work of the Root Brothers just now; I am simply calling attention to a piece of injustice that the great wide world should condemn. It is this matter of borrowing (or *stealing*, rather) other people's ideas without so much as saying "thank you." Just as soon as friend Root got his business well going, different persons started out with the same thing. They even copied the wording and the pictures on his advertisements; and, so far as I know, not one of these land pirates ever said so much as "by your leave." Very soon the agricultural papers began to offer these things as premiums. I remonstrated with one or two editors about encouraging a steal by patronizing somebody besides the original inventor; and I felt a good deal disheartened when they would reply, at least in substance, "Mr. Root, all you say may be true; but John Smith offers his outfit a little cheaper than we can get them of the original inventors and pioneers." Of course, a large part of my readers will say Mr. Root should have *patented* his invention. But there are a good many things that can not well be patented; and, more than that (thank God), there are quite a few persons nowadays who do not feel like going to the Patent Office and then carrying on patent litigation. Right here I am glad to be able to say that at the present time there is only one man who manufactures and advertises these outfits besides the Root Brothers at Plymouth, Ohio; and this man is not doing enough to be considered as a formidable competitor. The fellows who were so lacking in fairness as to steal another man's ideas kept on stealing, and in due time ran themselves *out of business*, especially while the Root Brothers adhered to honest fair principles in all their undertakings. I have seen this same thing happen a good many times in my life. But sometimes it is disheartening to see "the wicked flourish" for quite a spell, "like a green baytree."

What brought this up just now was suggested by looking over a beautiful little pamphlet from the Battle Creek Sanitarium. Many of our readers know about how these people started; and they will remember the time when they began to manufacture health foods and healthful substitutes for tea and coffee, nut products to take the place of meat, and other things of that kind. We are in position to know something about the growth and magnitude of their business, for we have been for years furnishing them carload after carload of boxes in which to ship their health foods. Well, just as soon as this company began to build up a trade in things of their own invention and suggestion, other people, being jealous of their success, started in to make similar products. Now, this is not so very bad, because it is going on all over the world; and there is a good deal of truth in the remark that competition is the life of business. The thing that looks to me not only unfair but *shameful* is that these rival companies went and planted themselves in *Battle Creek*. You see Battle Creek has become a sort of household word for wholesome health foods; it is something like the firm in St. Louis that put up glucosed honey and represented it as coming from *Medina, Ohio*. Our place had gained a world-wide reputation for fairness and honesty because of the wonderful growth and good character of The A. I. Root Co. I do not say this to boast, but because it gives a fair illustration. These new companies, it seems, under the stimulus of their "Battle Creek" trademark, soon likewise did a thriving business. Then others came in; and, if I am correct, there are now between *thirty and forty* different institutions all around the old original sanitarium, scattering broadcast circulars by the ton concerning their Battle Creek health foods. If they keep on doing business with that sort of principle back of them I believe they will in time come to grief like the repair-outfit fellows. But meanwhile I wish this great nation of ours would frown down every attempt of this kind to steal some other man's thunder. In the first place, it indicates a shameful *lack* of brains where one starts out in this way to try to steal the ideas of some other person. He is exhibiting to the world the fact that he has not brains enough to get up something of his own; and if we were all a little more ready to talk up to him, and give him the go-by, I think there would be less of such copying.

The Battle Creek folks will send to anybody, on receipt of a postal card, some beautiful pamphlets and illustrations of their new "temple of health," perhaps the largest institution of the kind on the face of the earth. The chief reason why I like to give these folks an encouraging notice now and then is that, with all their great army of helpers, they have decided against the use of tobacco, alcoholic stimulants, and every thing of that kind, just as your old friend A. I. Root has.

I have just been very much pleased to see the picture on page 8 of their "outdoor gymnasium." This gymnasium is a big yard with a high fence around it The "apparatus" consists of bucksaws and good sharp axes. Here the students and patients of the institution go in their gymnasium suits, bareheaded, barefooted, and bare*legged*, and chop wood. It makes me think of where I worked last summer up in my home in Michigan. I was barefooted and bareheaded, and my clothing was so scant that I came pretty *near* being barelegged. I notice the farmers in the Traverse region, when out in the field with light work to do, have a fashion of rolling up their sleeves almost to the elbow. Now, I honestly believe that, if we were in the habit of arranging our attire during the hot months of the year so the sun and air could strike our limbs and muscles, and make them tanned and brown, it would add largely to our health. I went barefooted because I had troublesome corns; and if my feet became soiled there was that running stream of water where I took my daily baths. One can do ever so much more work, at least in many occupations, by dispensing with coatsleeves and shirtsleeves, underwearsleeves, and every thing else. Of course, you are liable to be smiled at if company comes around; but which is worth more — robust health and the bright exuberance of spirits that comes with it, or to be fixed up for "company" every hour in the day? I suppose the two may be combined to a considerable degree; but I am sure that one of the great aids to better health is not only pure water to drink and pure air to breathe, but to dress in such a way that the air, water, and sunshine can strike you *all over* as much as possible. The Battle Creek folks are on the right track.



NOTES OF TRAVEL

BY A. I. ROOT.

THAT AUTOMOBILE TRIP THROUGH MICHIGAN.

This trip is going to take place about a month later than I expected at first, for reasons I will proceed to give. When I bought the machine, an Olds-Mobile, I told the agent, Mr. Andy Auble, that, if he could teach me so I could run the 30 miles from Cleveland to Medina that day, I would take the machine. You see I wanted it put to the severest test; and just then our clay roads had been badly cut up by repeated rains, and the mud had dried so part of the way that the machine would have to climb over great chunks of dried mud and clay, and at other places the wheels would sink. I told Mr. Auble if the machine would go over such roads as that without injury, I would be satisfied with it. I had had a little experience in running over good roads around the parks in Cleveland. We started off about 6 o'clock. The first ten miles over the brick pavement was all right. For the first time in my life I enjoyed having unlimited power and speed under my control. When I say "unlimited" I mean the machine would go faster than I dared to ride. And this speed was ready at any minute by simply pressing my toe on a lever. Faster, *faster*, FASTER—until I was afraid to go faster—still. It was an easy matter to keep up with the street-cars that ran along by my side. And this machine, too, was a special "hill-climber."*

It is really worth something in a lifetime to be able to rush things, and with the power that shows no fatigue. One can hardly comprehend that there is no danger of overtasking the horse, or that the hot weather does not make any difference. This was all very nice until we came to the end of the brick pavement. My companion, Mr. Auble, sat by my side, telling me which lever to push or pull, constantly repeating the command to keep my eyes on the road ahead. Said he, "Commence at the very outset to make your fingers find the levers, without a glance from your eyes, especially when you are on high speed."

Well, when I came in sight of the clay roads, with holes full of muddy water, and great chunks of dry mud almost as large as a cook-stove, I said, "Mr. Auble, it certainly is impossible to run this machine over that road. We shall just smash it to pieces, and never get there."

I wish I could give you a picture of the twinkle in his eye as he said, "You just do my bidding; have faith in me and the machine, and we shall get to Medina all right before very late bedtime."

I confess to a great inclination to tell him to take my seat and manage; but that was not according to the contract. I wish you could have heard his quick crisp directions, perhaps something like this:

"Now pick out your road; put on your power; pull up the spark-lever; now off with your power; put on the brake; ease down at that mudhole; straddle the one ahead of you; put on the slow gear, and the minute she climbs over that obstruction let her down easy with the brake; now get up a little speed for that next bad place—here we go."

Thus we hobbled along, having hard work sometimes to keep our seats, until *chug* we went down into the mud. The thing was stuck, and would not move.

"There, I told you. Now we shall have to get some horses to pull us out."

"No, we won't have to have any horses. I never yet had a horse to pull me out, and I don't expect to very soon. Put on your slow motion; back up; swing off to the left with your other power—that's right, here we go."

Well, I kept on in this way until I had made a mile. I began to get a glimpse of what is possible with such a machine in the hands of an expert. The work was not very hard, but some way it got me into a perspiration. The mental strain was ahead of any thing I had ever had on my bicycle, and I was tired enough to be glad to acquiesce when he said, "There, Mr. Root, you could run us home all right, without any doubt; but I think you will learn as much now to watch me, perhaps, as to try it yourself; and I can make quite a little better time and not boil the water quite so furiously."

It was not the water alone that was boiling, but it was the blood in my veins from the excitement and enthusiasm. Oh how I did admire the skill with which he made that machine get over that bad road! Just after dark, sure enough the machine began to get feeble, and it got tired and would not go at all. I think a full half-hour was spent in darkness trying to locate the difficulty, and I felt a little proud to think that I myself got hold of it. There was a defect in the make of the spark-plug. The porcelain insulator was loose. Just as we had concluded we would have to stay over night at the hotel we got at the trouble. A new spark-plug was put in, and we went on our way merrily.

A few minutes later we struck a piece of better road. It went down hill, winding about through a piece of woods; and it seemed to my inexperienced vision just frightful the way that thing rushed on in the darkness, and turned the corners. The exhilaration was such that I shouted and swung my cap. Some optical illusion seemed to say we were going down the side of a great mountain. In fact, I could not comprehend how any thing should go at that terrific speed unless it was down hill.

We arrived home all right a little after ten. Mr. Auble was going to the hotel; but I insisted he should take his sleep in our home. I will tell you why. I knew I should be up by daylight, or a little after. The whole neighborhood would be still and quiet, and I just hungered for the privilege of getting that machine out on a good road and having fun with it without any one to bother or hinder, or give advice. I had a notion I could master the mechanism after a little study, equal to anybody else. Yes, I will tell you confidentially that I had a sort of notion that I might be able to make it go a little *better* than any other live man or woman. I told Mr. Auble what I proposed to do, and he said all right. Shall I tell you how I did it? I was up, sure enough. In fact, my fingers just tingled all night long to get hold of those levers and test that new revelation (what I really want to say is that new wonderful and gracious gift from the great Father above). I just ached to make that wonderful piece of mechanism respond to my will. I remembered the directions. It backed out of its stable all right. It ran the length of our stone road, and behaved itself beautifully. Of course, I went slowly, because I was a little afraid of it. As there was no living being in sight—of course the road was clear—I thought on the way home I would just see how fast it *could* go. Well, just about as the speed began to frighten me I remember thinking it was a little too near the edge of the road. There was a rather deep ditch at the side, full of muddy water. I undertook to bring it a little nearer the center of the road. I have a dim recollection that it seemed to have "the bits in its teeth," for it just shot over into that ditch like a flash. I remember something about trying to make it get back in the road; but when it came so near being turned over I was afraid it would fall on me, I sprang out into the grass on the opposite side of the ditch. I suppose my hair was almost standing on end from fright. I got up on the sidewalk, and legged it for home. I burst up into Mr. Auble's sleeping-room; and, even though I found him snoring away, sleeping the sleep of the just, I did not hesitate to rouse him up.

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*One like this designed for sand or heavy grades must necessarily make a slower speed on the level than the regular machine.

"Mr. Auble! get up quick, and get my machine out of the ditch."

He sprang up, rubbed his eyes, stared at me a minute, then ejaculated:

"Out of the ditch! What in the world is your machine doing in the ditch at this time of day?"

"Well, that is just what I can not understand. And the worst of all, it is just now time for the milk-wagons to come along, and I want you to get it out before everybody sees it and tells the story all over town."

"Yes, yes! I see."

In a very brief time he followed me to the scene of the disaster. One of the front wheels was down in the muddy water, and one of the rear wheels was away up in the air. It was in such a predicament that we said we could turn it either side up with one hand.

"Shall I go and get our team?"

"No, no! I never had a team yet, and I do not think we want one now."

In my fright I had not even pulled off the power, nor put my foot on the brake. Here is one good thing about the gasoline-machines. They will almost always stop themselves as soon as the driver is out of the seat. He started it up right where it stood. For a little time the wheels "pawed the air," if I may so express it. But we managed to get that front wheel up on the bank, then he straddled the ditch, and ran to a place where the roadway goes into a private house. This was so very steep, and the mud in the ditch so soft, I thought the machine would not get up. But he commenced backing up, and running toward the bank. Pretty soon he had worn a track so the machine had a tolerable path to get up momentum; and then it popped over the bank into the road, and went off apparently uninjured and unconcerned. Half an hour with the hose made it look almost as new, after its experience, as when it came out of the salesroom 12 hours before.

You see I had been planning to start my trip through Michigan after one day's experience in running it from Cleveland to Medina. All the children had protested; but I thought I knew what I was at. After running into the ditch I lost my confidence. I was glad to have Mr. Auble by my side while I ran it one more day; and even then I thought best, as the rest advised, to wait for Huber to come home from school, to let him go with me. On this 9th day of July, Huber and I are ready to start out. He has had two weeks' experience with the machine, and I suppose I can say, without exaggeration, that he is a tolerably expert electrician; in fact, his education for several years has been in that direction. He has had the machine pretty nearly all to pieces, and knows every part of it. How we get on I will let you know in Notes by the Way.

The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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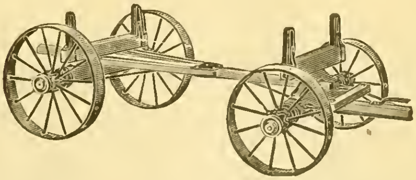
Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.

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There and Back $50 From Chicago

Tickets on sale Aug. 1st to 14th inclusive.

Account meeting of National Bee-keepers' Ass'n.

Travel via the **Santa Fe**—the "Grand Canyon Line."

Most picturesque and pleasant route.

You can also have privilege of going one way and back another. (Round trip via Portland one way is $11.00 higher.)

Final return limit, Oct. 15th, 1903.

Full information and copy of beautiful book on California, on request.

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QUEENS **Golden Italian & Leather Colored**

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis" Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa., writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr. ———, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens After July First.

	1	6	12
Selected	$ 75	$4 00	$7 00
Tested	1 00	5 00	9 00
Select Tested	1 50	8 00	
Extra Selected Tested—the best that money can buy	3 00		
Two-frame Nuclei, no Queen	2 00		

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Strong Testimony in Favor of

Moore's Strain of Italians

Prof. Frank Benton, of Washington, D. C., whose name is familiar to all progressive apiarists, says:

"I have several times, in the course of correspondence, and in conversing with bee keepers, had occasion to answer the question: 'Where can the best Italians be got?' It is, perhaps, not an easy thing to say, with certainty, but at least I have felt I might be able to tell where GOOD ones could be obtained. A number have been referred to you, for, although I have not tested your stock personally, I thought I knew pretty well, from general reputation, its character. A bee-keeper near here—Geo. A. Lanphear, of Vienna, Va.—who got some queens of you on my recommendation is so well pleased with them—in fact, gives your bees such a good recommendation to me for gentleness and working qualities, particularly their working on red clover, that I thought I would like to try some myself."

I was not aware that Prof. Benton was recommending my stock until I received the above letter. Such testimony as this certainly has great weight, and shows why my business has grown so fast.

Prices for daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5.00; dozen, $9.00. Safe arrival and satisfaction guaranteed Send for descriptive circular.

My 23-100 breeder was awarded a $25.00 prize by The A. I. Root Co. for producing bees showing the longest tongue-reach on record. Competition was open to the whole world.

I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
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QUEENS for BUSINESS and PROFIT

These are to be had of Will Atchley. He is now prepared to fill all orders promptly, and breeds six different races in their purity. You must remember that all of the PURE Holylands that now exist in the U. S. originated from the Atchley apiaries, and they have the only imported mothers known to the United States. Untested queens from these races, 3 and 5 banded Italians, Cyprians, Albinos, Holylands, and Carniolans, bred in their purity, from 5 to 35 miles apart, February and March, $1.00 each, or $9 00 per dozen. All other months, 75c each, $4 25 for six, or $8 00 per dozen. Tested queens of either race, from $1.50 to $3.00 each. Breeders from $3.50 to $10.00 each. 1, 2, and 3 frame nuclei and bees by the pound a specialty. Prices quoted on application. Safe arrival and perfect satisfaction guaranteed. A trial order will convince you. Price list free. **WILL ATCHLEY,**
P. O. Box 79, Beeville, Bee County, Texas.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00 Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

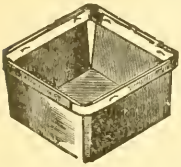
Ho! Bee-keepers! Attention!

We are again rearing the best of queens for market. We have 1000 colonies of bees, the best stock, and 10 years' experience. We have either Golden Italians or three banders. Price, 75 cts. each; $4.25 for 6; $8.00 for 12; tested, $1.50 Safe arrival and satisfaction. Give us a trial. All orders filled promptly.

TEXAS BEE-KEEPERS

We keep a large stock of honey-cans of all sizes ready for prompt shipments. Get our prices. We also want all the section and bulk comb honey that we can buy, and will take some No. 1 extracted. We pay spot cash. Write us.

The Hyde Bee Company, Floresville, Texas.
(Successors to O. P. Hyde & Son.)



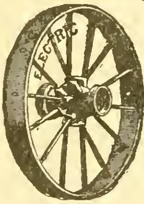
Fruit Packages of All Kinds.

—ALSO—

BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX COMPANY,
Berlin Heights, - - Erie County, Ohio.



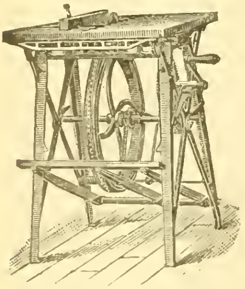
A Wagon's Worth

depends upon its convenience and life. The life depends upon the wheel. You get every convenience of the **Modern Low Handy Wagon** and double its life by using

ELECTRIC Metal Wheels

For a few dollars you turn your old running gears or one you can buy for a song, into a new wagon. Straight or staggered oval steel spokes. The stoutest wheel you can buy. **Any height, fit any wagon.** No repairs, no rutting, light draft, long service. Let us send you free catalog to show you how it saves you money.

Electric Wheel Company., Box 95, Quincy, Illinois.



BARNES'
Hand and Foot Power
Machinery.

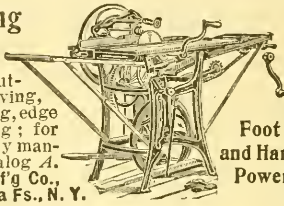
This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial.

Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford. : Illinois.

POULTRY PAPER, illust'd, 20 pages, 25 cents per year. 4 months' trial 10 cents. *Sample Free.* 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. **Catalogue** of poultry books free. *Poultry Advocate*, Syracuse, N.Y.



Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Cuba.

If you are interested in Cuba, and want the truth about it, subscribe for the

HAVANA POST,

the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago, Ills.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

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Squabs are raised in 1 month, bring *big prices.* Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into.* Send for our **Free Book,** "How to Make Money With Squabs" and learn this rich industry. Address

PLYMOUTH ROCK SQUAB CO.,
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Wind Power

is the cheapest power known. For a farmer-bee-keeper, who has stove-wood to cut, water to pump, and feed to grind for stock, corn to shell, and bee-hives to make, nothing can equal a well-arranged power wind-mill. *The Bee-keepers' Review* for June illustrates a wind-mill thus arranged, and a bee-keeper who has such a mill, and uses it for all the purposes mentioned, contributes an article, giving cost, advantages, and drawbacks, together with several other interesting items on the subject. He has had his mill six years, and can speak from experience.

Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may be applied on any subscription sent in within a year. A coupon will be sent entitling the holder to the *Review* one year for only 90 cents.

W. Z. HUTCHINSON, Flint, Mich.

THE BEST FRUIT PAPER

Southern Fruit Grower

CHATTANOOGA, TENN.

Every grower of Fruits and Vegetables should read it.
Only 50 cents a year.
Splendid advertising medium.
Sample copy free.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1.00 each; $5.00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

DURING SEPTEMBER, 1901,

the United States Department of Agriculture imported a lot of queens from the Province of Bergamo, Italy, one of which was sent to me to be tested. For prolificness and industry she and her offspring are second to none, and I am now prepared to fill orders promptly with her daughters or the best golden queens at $1.00 each or $9.00 per dozen. M. O. office, Warrenton.

W. H. Pridgen, Creek, Warren Co., N. C.

The World's Record for large yields of honey, my bees have stood the test for 30 years. Italian queen mothers a specialty. If you want to see the best and most novel queen-cage ever invented for introducing safely. Send for a queen and you will get one. Circular free.

F. Boomhower, Gallupville, N. Y.

Bred for Work Terrace queens have given best of satisfaction; bred from selected stock; best of workers; very gentle, and fine color. Untested, 75c each; six, $4.25; twelve, $8.00. Tested, $1.00; six, $5.00; dozen, $9.50.

Harold Hornor, Terrace Apiaries, Mt. Holly, N. J.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

"Tested Queens."

No! not for color, but for honey. Will sell queens from colonies that have stored a good surplus from palmetto, some have 3 10 frame supers full to date. Old enough to show what they will do but not aged. Price for queen and bee brush, $1.00

SARAH A. SMITH,
Grant, Fla.

Red Clover and Three and Five-Banded Queens.

Untested, 65 cts; 2 for $1.00. Fine tested queens, $1.00 each. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Plenty of queens, and go by return mail. Fifty and one hundred, special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENN.

Do You Know that you could come nearer getting what you want, and when you want it from the New Century Queen-Rearing Co. (John W Pharr & C. B. Bankston), than anywhere in the United States? Untested, 50c.; tested 3 and 5 band, 75c; all other races, $1.00. Send for circular. **Berclair, Goliad Co., Texas.**

We have bought out C. B. Bankston's interest in the above named firm. JOHN W. PHARR.

"Dollar Italian Queens"

Ready for delivery May 10. Send for price list.

E. E. Lawrence : Doniphan, Missouri.

QUEENS DIRECT FROM ITALY

Fine, reliable English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

S. D. BUELL

Manufactures bee hives, and is agent for The A. I. Root Co.'s goods, which are sold at factory prices. Catalog sent free. Bees for sale. Beeswax wanted.

Union City, Mich.

What $10.00 Will Do

Invested in the Co-Operative Mail-Order Business. Co-Operative, Profit-Sharing, Money-Saving. A Handsome Life Income Assured to Investors.

A Magnificent Mercantile Enterprise.

WE SELL At Lower Prices

Than all others, and issue complete catalogues of

Athletic Goods
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Clocks
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Clothing, Made-to-Order
Crockery and Glassware
Furnishing Goods
Furniture
Groceries
Guns and Sporting Goods
Harness and Saddlery
Hats and Caps
Hosiery
House-furnishing Goods
Jewelry and Silverware
Lamps
Millinery
Mackintoshes and Rain-Coats
Moving-Picture Machines
Musical Instruments
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Organs
Pianos
Photographic Goods
Public-Entertainment Outfits
Refrigerators
Sewing-Machines
Shirts, Men's and Boys'
Stoves and Ranges
Talking Machines
Trunks and Satchels
Vehicles of Every Description
Underwear
Watches, etc., etc., etc.

First Public Announcement

Of Interest to Everybody, and Worthy of Your Closest Attention to the End Because it Contains a New Idea Which Will Appear to You as Unique, Striking, and Certain of National Success.

THIS is an advertisement—We desire to set forth to the readers of this paper the true merits of a splendid, safe investment—opportunity—and challenge the searching scrutiny of the most conservative banker, lawyer, or business man. Let us preface the announcement by saying that this is not the mushroom scheme of a promoter but a well-weighed, carefully balanced plan of organization matured by years of experience and careful study, and based on practical, successful operation We have laid our entire plan and proposition before some of the leading bankers, lawyers, and business men of Chicago and other cities, also before many of the leading manufacturers throughout the United States, all of whom have pronounced it correct in principle, practical, and certain of success. All these people have been approached in a private way, and many of them have interested themselves with us. They are positively leaders in the business world and known by everybody. Here is the proposition plainly stated: We have organized the **"Cash Buyers' Union, First National Co-Operative Society,"** taking as a basis for this organization the old well established and eminently successful institution, the Cash Buyers' Union, a concern which has been in successful operation for the past eighteen years, whose advertisements have appeared in every mail order, agricultural, and class advertising medium in the U. S., and whose name is a household word in every farm and village home. It has already several hundred thousand active customers scattered throughout the land from Maine to California, and from British Columbia to the Gulf. We have reorganized this institution with a capital of **Five Million Dollars.**

This is our Plan.

We want every reader of this paper to become a stockholder of the **Cash Buyers' Union, First National Co-Operative Society**, of Chicago, Ill., —one of the largest mail-order houses and the greatest co-operative store in the world. We want **small** stockholders, but thousands of them, and everywhere. We will not sell more than 100 shares ($1,000.00) to any one individual, and reserve the right to return your subscription and money after the amount of stock allotted to your county has been placed, or for any other good reason. This means that **you must act at once** or your letter and remittance may be returned to you, thus depriving you of participation in **a great national movement toward co-operative dealing**, depriving you also of this most exceptional opportunity for a **strictly high-grade** and immensely profitable **investment**—far better than a government bond, and as safe; better than your savings-bank deposits; better than real estate, mortgages, stocks, bonds, or any other flattering investment you may mention.

We Have Refused to Accept $250,000

offered by one single Chicago capitalist, who like ourselves, is so strong a believer in the **co-operative** mail-order business, so forcibly attracted by its wonderful earning power as demonstrated by famous National successes that he would be thankful to be permitted to invest his money in our shares. We have refused him because he could only **give us his money.**

We don't want money, we want stockholders—Co-Operative Stockholders—men, women, even children, all over this great country, one at least in every town or hamlet, who will, impelled by their sense of interested ownership and personal profit, make it their business to become walking, talking advertisements for this great establishment; who, no matter if they hold but one ten-dollar share, will feel proud ownership in their institution and do as owners do, Talk the Business, Push the Business, Boom the Business.

CATALOGUES Now in Preparation

Artists' Materials
Bakers' Supplies
Barbers' Supplies
Blacksmith Tools
Books
Builders' Hardware
Butchers' Supplies
Carpets and Curtains
Cutlery
Dairy Supplies
Drugs
Dry Goods
Electrical Goods
Fishing Tackle
Furnaces
Hardware
Ladies' Wearing Apparel
Miners' and Prospectors' Outfits
Notions
Paints
Plumbers' Supplies
Surgical Instruments
Stationery
Tailors' Trimmings
Tinware
Tombstones
Tools of Every Description
Toys
Wall Paper
Woodenware

In fact, a Complete Line of

General Merchandise.

Write for any of these FREE Catalogues.

In other words—we want our stockholders to be active in and for the business—**be Owners, Customers, and Salesmen—all in one.**

AS OWNERS: You will receive 7 per cent. on your investment **(that is guaranteed)** and **in addition** a proportionate share of the profits, which are from 15 per cent. on the investment from the very start and may reach 50, 75, or 100 per cent. annually according to the amount of business secured.

AS CUSTOMERS: **You have special privileges in purchasing and can buy (if you desire to patronize your own store, which is optional) at a special stockholder's discount from the regular catalogue price, which alone will save you more than your entire investment in a short time.**

AS CO-OPERATORS: If you influence orders for us you will receive a vast amount of money which would otherwise have to be spent in selling expense — newspaper advertising and catalogues.

This is Co-Operation at Last

in the truest sense of the word—the people owning their own store—with a purchasing power greater, more stupendous than that of all the great department stores of New York City and Chicago combined—a purchasing and distributing power which will drive price points lower than ever before, reduce the cost of living, and enable the people in any part of the country to supply their needs—**either direct, by mail, or perhaps through local branch stores**—at nearly half the price they are ordinarily obliged to pay.

Detailed Plan of Capitalization.

We have decided to re-charter the "Cash Buyers' Union" under the name of **Cash Buyers' Union, First National Co-Operative Society**, and increase its capital stock to **Five Million Dollars** consisting of 500 000 shares of $10 each and divided as follows: **Preferred stock, $2,500,000, common stock $2,500,000**, and offered for sale at par, for cash, **preferred stock only.** The preferred stock is fully paid, non assessable, seven (7) per cent. Guaranteed cumulative and fully participating.

This Means: 1st—The preferred stock is called preferred because it constitutes an absolute first claim, in effect a first mortgage on the entire assets, property, property-rights, trade-marks, trade-rights, etc., and the net profits of the business. The common stock can not draw one cent of dividend until the preferred stock has first been paid its guaranteed 7 per cent each and every year. 2nd—It is fully paid and non assessable. Your first payment of $10 pays in full for one share, and you can not be assessed for further payment under any consideration. 3rd—An annual dividend of 7 per cent must first be paid each and every year on all the preferred stock before the common stock receives one cent, and this dividend is also first claim on all the property of the society. 4th—Fully participating means that, in addition to the 7 per cent guaranteed dividend, the preferred stock fully participates—share and share alike in all the profits of the society. For example: If the net profits of the society amount to 25 per cent on the investment the preferred stock will receive, in addition to the guaranteed 7 per cent dividend, another 18 per cent dividend. 5th—Every dollar received from the sale of preferred stock goes right into the business for active use and is represented by actual assets—dollar for dollar.

Limitation of Subscription: We should prefer to place this stock to 250,000 individual shareholders, each owning but $10.00, because the widest possible distribution of the shares is the chief object of this organization; therefore not to exceed 100 shares ($1 000) will be sold to any one individual. Again, to distribute our representation equally throughout the country, we reserve the right to decline your subscription if the amount of shares allotted to your county on the basis of population has been reached. We will not accept total subscriptions to exceed $150,000 a month, and reserve, until further notice, the right to return all money received in excess or apply it on the next month's allotment, if you prefer.

Net Profits: 15 per cent on the investment right from the start is the most conservative estimate it is possible to make for a successful business established 18 years, which is *not a new, unproven enterprise*, but a business which already has several hundred thousand satisfied customers with whom it is now doing business every day, and which *sells everything from a needle to a threshing machine*, reaching every part and point of the civilized world. During its 18 years of successful existence the *Cash Buyers' Union*—the very business you buy into—*has earned as high as 30 per cent on the capital invested* on a comparatively small business, consisting of but few departments. With the much larger business assured through the interested and profit-sharing co operation of thousands of customers, and the public at large, an even higher ratio of profit is safely assured.

History: *A return of more than thirty times the investment in six years.* The tremendous earning power of mail-order business is history. One of the pioneers in the business, as long as 25 years ago, started with a small office; and having little or no money, offered a half interest in his plant for $2,000, which money he desired for the expansion of the business. He was refused. Today this same $2,000 half-interest is worth $3,000,000 and not for sale at any price. And all this vast capital has been piled up by profits of the business. For another example: Eight years ago a Chicago capitalist entered a newly started mail-order business. He contributed to the capital of the firm less than $10,000. During the six years of his active connection with the business he withdrew many times his original investment in dividends, and finally sold his interest for considerably over a million dollars. Six years in the mail-order business netted him *more than 30 times* his original investment. All this was done under close individual partnership, with limited capital and without the tremendous co-operation and selling force of an army of thousands of co-operative stockholders. The business of two of the largest mail order houses combined amounts to $35,000,000 annually, and yields a profit of $1,400,000, on a total capitalization of less than $1 000 000, *or 35 per cent on the investment.* With such achievements by private individuals, a strongly co-operative organization with a $5,000,000 capital—greater than that of all others combined—*with the most skilled force of managers and employes recruited from its own shareholders* will, without question, achieve still greater results both in point of sales and net profits produced. *In Conclusion:* It is evident from these facts and figures, which can be verified by any commercial agency, any bank in the city of Chicago, or the publisher of this paper, that our proposition will meet with immediate national acceptance, as this advertisement appears in every paper of value from the Atlantic to the Pacific and from Winnipeg to the Gulf. It is evident, also that *this stock will be largely over-subscribed, go to a premium at once*, and that the principle "first come first served" will have to be applied from the very start. While we shall be glad to send our elaborate "Book of Information" to all those who desire more complete details, we advise you, in your own interest, to *subscribe today, NOW, before you lay aside this paper;* and we and our bank agree to return your money if within 30 days after subscribing you change your mind or are dissatisfied with your investment for any reason.

Cash Buyers' Union, First National Co-Operative Society, 158 to 168 W. Van Buren St. Chicago, Ill.

REFERENCES: First National Bank, Chicago, Depositary; Metropolitan Trust & Savings Bank, Chicago, Registrars; Messrs. Lord & Thomas, Advertising Agency; Dun's or Bradstreet's Mercantile Agencies; any railroad or express company. The publishers of this or any newspaper or magazine. Any bank or reputable business house in Chicago.

Request for Prospectus.

Cash Buyers' Union, First National Co-Operative Society, Department A66,
158 to 168 W. Van Buren St., Chicago.

Gentlemen:—Please send your complete "Book of Information" and all literature pertaining to the profit-sharing stock of your company to

Name.. Street..

P. O. .... State ....

It is understood that above will be sent to me free of all charges and that I am under no obligation whatsoever to subscribe.

For Quick Action, Fill Out this Remittance Blank and send in plain letter with P. O. Order, Express Order, Check, or by Registered Mail if currency.
Metropolitan Trust & Savings Bank, Corner Madison and LaSalle Streets, Chicago, Ill.

Gentlemen:—I hereby subscribe for..shares of the full paid, non-assessable, 7 per cent Preferred and fully participating stock of the **Cash Buyers' Union, First National Co-Operative Society** at $10.00 per share. Enclosed find $.............................. in payment of same. This stock is to be registered by you in my name, and the stock certificate sent to me, and when so registered and sent to me you are authorized to turn over my money to the company. If my subscription is received too late, the money is to be returned to me.

Name.. Street..

P. O. .... State..

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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SPECIAL NOTICE
Special Notices
By Our Business Manager

BEESWAX.

Until further notice we will pay 28 cts. cash, or 30 in trade, for average wax delivered here. From one to two cents extra for choice yellow wax.

GOODS DAMAGED IN THE FLOOD.

The flood in Kansas City, Mo., the last of May, caught a carload of our goods in transit to Carl F. Buck, Augusta, Kan. The damage to the goods in the car will amount to $500, besides the disappointment of customers who were waiting for these goods to arrive in Augusta. Some goods are a total loss, while others are damaged, but good enough to be used at a reduced price. Mr. Buck is planning to build a larger warehouse, and fill it during the fall and winter so as to be prepared for an increased spring trade. Judging from the experience of many dealers during the past few weeks, and their failure to get goods in sufficient quantity to fill orders promptly, they will do well to adopt a similar plan.

BUSINESS BOOMING.

Favorable weather over a large area has brought on such a spurt of honey that the demand for sections and shipping-cases is something phenomenal. It is impossible for manufactures to keep pace with it. We have been running our section machinery up till 9 p. m. for the past three weeks or more, making from 600,000 to 700,000 a week; but we can not supply the demand. Several of our agencies have been greatly crippled in filling orders for lack of sections. Our stock of 1$\frac{15}{16}$ and 2 inch, 4-beeway we have worked over and disposed of in 1½ plain and 1⅞, 4 openings, the latter in some cases being substituted for the regular 2 openings. This is better than not to get any thing. Let dealers and bee-keepers alike take warning, and provide themselves *early* with goods in greater abundance, and thereby avoid such a famine as they are now having

..Very Satisfactory..

The four dozen queens I got of you last year are very satisfactory, being good honey-gatherers, and gentle, and finely marked. CHAS. STEWART,
Sammonsville, N. Y.
June 19, 1903. State Bee Inspector, 3rd Div.

To induce a trial we offer WARRANTED queens at 75c, six for $3.50; fine select, $1.00, six for $4.50. Queens sent promptly; satisfaction guaranteed. Hybrids or poor queens replaced free.

J. B. CASE, Port Orange, Fla.

.....Honey Queens, Golden Italian.....

are hustlers, and they are beauties, and are gentle, and can not be excelled gathering honey. Untested, 75c.; tested, $1.00; breeders, extra fine, $3.00; full colonies, $6.00, with tested queen—none better. . . . .

H. C. Triesch, Jr., Dyer, Ark.

When you want Queens that please, and want them

By Return Mail,

join the crowd and send here where the spring rush is now over. I can guarantee them to leave promptly from now on, and arrive safe. ***Best Honey Strains only*** are bred from Goldens, Carniolans, leather-colored Italians. 75c each, or $7.50 per dozen; tested, $1.00 each, or $10.00 per dozen.

George J. Vande Vord, Daytona, Fla.

BEES FOR SALE 100 3-frame nuclei with queen at $2.00, in lots of 10 or more. Less than 10, at $2.25. F. W. DEAN,
NEW MILFORD, PA.

FINE QUEENS FROM THE BLACK HILL APIARIES Golden and Long-tongue. Write for price list. Reference G. F. Davidson & Son.
Carver & Mathis, Props., Verdi, Texas.

TEXAS QUEENS FROM LONE STAR APIARIES. We are now ready to furnish you queens from the best stock of any race. These queens are equaled by few and inferior to none. Write for price list
G. F. Davidson & Son, Props., Fairview, Texas.

4,000,000 PEACH TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

BUSHEL CRATES

Our ventilated bushel crates are better and cheaper than baskets—8 cents each—made of best material. Shipped ready to put together. Booklet No·12 full particulars free.
Geneva Cooperage Co., Geneva, O.

BUY POULTRY SUPPLIES where you are assured of high quality. We carry only the best. Everything the poultryman uses, as Incubators, Foods, Remedies, Appliances, etc. Also High Strain Poultry and Hatching Eggs.

Our Poultry Specialists

will answer all inquiries free of charge. Write us freely and ask for free catalog D.

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$30 Colorado And Return.

First class to Denver, Colorado Springs, and Pueblo from Chicago, daily, throughout the summer, good returning October 31. The

Colorado Special

fast daily train, one night to Denver from Chicago and the central States (only two nights enroute from the Atlantic seaboard), leaves Chicago daily 6:30 P. M.

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comes pretty near being the perfect farm fence.
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POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
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FOR SALE.—Fine, carefully reared queens, from a hardy, prolific, honey-gathering strain of 3-banded Italians; can also furnish queens from Doolittle Golden strain, if preferred: untested, 65 cents; tested, $1.00; selected breeders, $2.50 EARL Y. SAFFORD, Salem, N. Y.

FOR SALE.—100 colonies Leather colored Italian bees. A tested queen in each colony. In 8 frame Dovetail hives. Price after July 15 and during Aug., $4.00 each. In lots of 10, $3.50 each. F. A. GRAY, Redwood Falls, Minn.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell, a Barnes foot-power saw.
H. H. JEPSON, Medford, Mass.

WANTED.—Comb and extracted honey. See honey column. GLEASON & LANSING, Buffalo, N. Y.

WANTED.—To sell for cash, 5-gal. square tin cans used for honey, at about half price of new cans For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell 69 colonies of bees, cheap; in tall hives, nearly square, frames 12½x11, outside measure; hives to contain supers and separators. Also 100 lbs. of fine clover honey, just extracted, at 7c on cars here H. C. LANE, Twineburg, O.

WANTED.—A car of mixed tile, 3, 4, and 6 in., also names of manufacturers of tile and hay-loaders.
W. E. CARPENTER, Freemansburg, W. Va.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—An experienced bee-keeper in Georgia wants position in Cuba the coming season.
"GEORGIA," care The A. I. Root Co.

WANTED.—To exchange copy of *New York Herald*, April 15, 1865, in good condition, containing detailed particulars of President Lincoln's assassination. Best offer gets it. ELIAS FOX, Hillsboro, Wis.

WANTED.—To sell during July, about 20 three-frame nuclei, with queens bred from Hutchinson's Superior stock, and Root's red-clover queens, at $2.25 each. Frames are 11½x9¼, top-bar 13½ inch.
H. L. FISHER, New Paris, Ind. R. F. D. No. 2.

WANTED.—To sell, for 65 cents each, choice untested queens, reared from selected mothers, the Carniolan-Italian cross—the coming bee for comb honey? A trial order will convince you. Satisfaction guaranteed. L. H. PERRY, Clay, N. Y.

WANTED.—Agents to sell and attach automatic cut-offs to grinding-mills, which automatically stop them when hopper becomes empty. Especially adapted to Aermotor windmills. Write for particulars.
B. STRITTMATTER, Bradley Junction, Pa.

WANTED.—To sell my Sable and White Scotch Collie dog, one year old, eligible to register, good farm dog, easily taught, good with children, very affectionate; thoroughly house-broken, and very handsome. Price, cash, $20.00, or will take $25.00 in honey.
F. N. CHAMBERLAIN, Tyngsboro, Mass.

WANTED.—At once.—Young man of staunch Christian character to work large apiaries and light ranch work out of honey season Steady job with chance to work up. Pleasant home, good climate; 25 miles from railroad Wages $30 per month. References A. I. Root, Medina, Ohio.
L. B. BELL Camp Verde, Arizona.

WANTED.—A buyer for one of the best bee-ranges in California, 80 acres of land, 25 in cultivation. Small orchard, house, farm, 3 chicken-houses, 175 colonies of bees, honey-house, and up-to-date equipment for comb and extracted honey; land $800.00, bees $4.00 per colony; bee material at catalog prices. Address
J. M. MACK, Bonsall, San Diego Co., Cal.

WANTED.—To sell, 500 Hoffman brood-frames, 10 lbs. light brood foundation, 10 lbs. light brood section foundation, 1000 sections, 4¼ plain; 50 honey-boards, 8-frames wood-bound zinc; 300 section-holders 100 separators; cleated nails for frames, etc., included. All new. One Cowan two-frame extractor, second-hand. Will sell cheap for cash. G. F. TUBBS, Annincreek, Pa.

WANTED.—To furnish you select long tongued Italian queens at the following prices: Untested $1.00 each, $10.00 per dozen. Tested, $1.25 each, $12.00 per dozen. Four years' experience in rearing queens for the trade. Safe arrival and reasonable satisfaction guaranteed. CHAS M. DARROW, Route No. 3, Nevada, Mo.

Reference, by special permission, the Nevada Banking Co., of this city.

WANTED.—To sell S. W. ¼ of S. E. ¼ sec 26 range 26, Crystal Lake Tp., Benzie Co., Mich.; 40 acres just outside corporation of Frankfort; a nearly finished cottage of six rooms, a small stable, 25 bearing apple-trees, a few peach-trees. From front porch can be seen a delightful view of the little city of Frankfort, Lake Michigan, harbor steamers, etc Unexcelled as a summer home or a fruit-farm. Only a few hours from Toledo, Detroit, Chicago Minneapolis, and other cities Write Gen Pass. Agent of Toledo & Ann Arbor R. R., Toledo, Ohio, for pamphlet describing Frankfort Cheap at $2200; if bought soon can be secured at $1400. Also for sale 160 acres, 15 miles east of Frankfort; only $2.50 per acre 25 acres ready for the plow. Write C. L. Linkletter, Agent, Frankfort, Mich., or W. A. HOBBS, Owner, Traer, Iowa.

PAGE & LYON,
New London, Wisconsin.

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AND DEALERS IN . . .

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SUPPLIES. . . .

Send for Our Free New Illustrated
Catalog and Price List. . . . .

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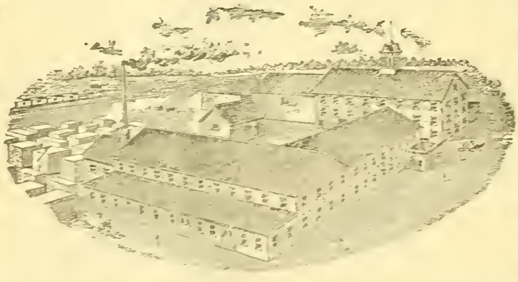
Not Moved.**

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

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Best-equipped factory in the West; carry a large stock and greatest variety of everything needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

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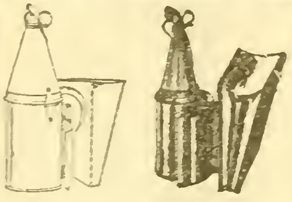

BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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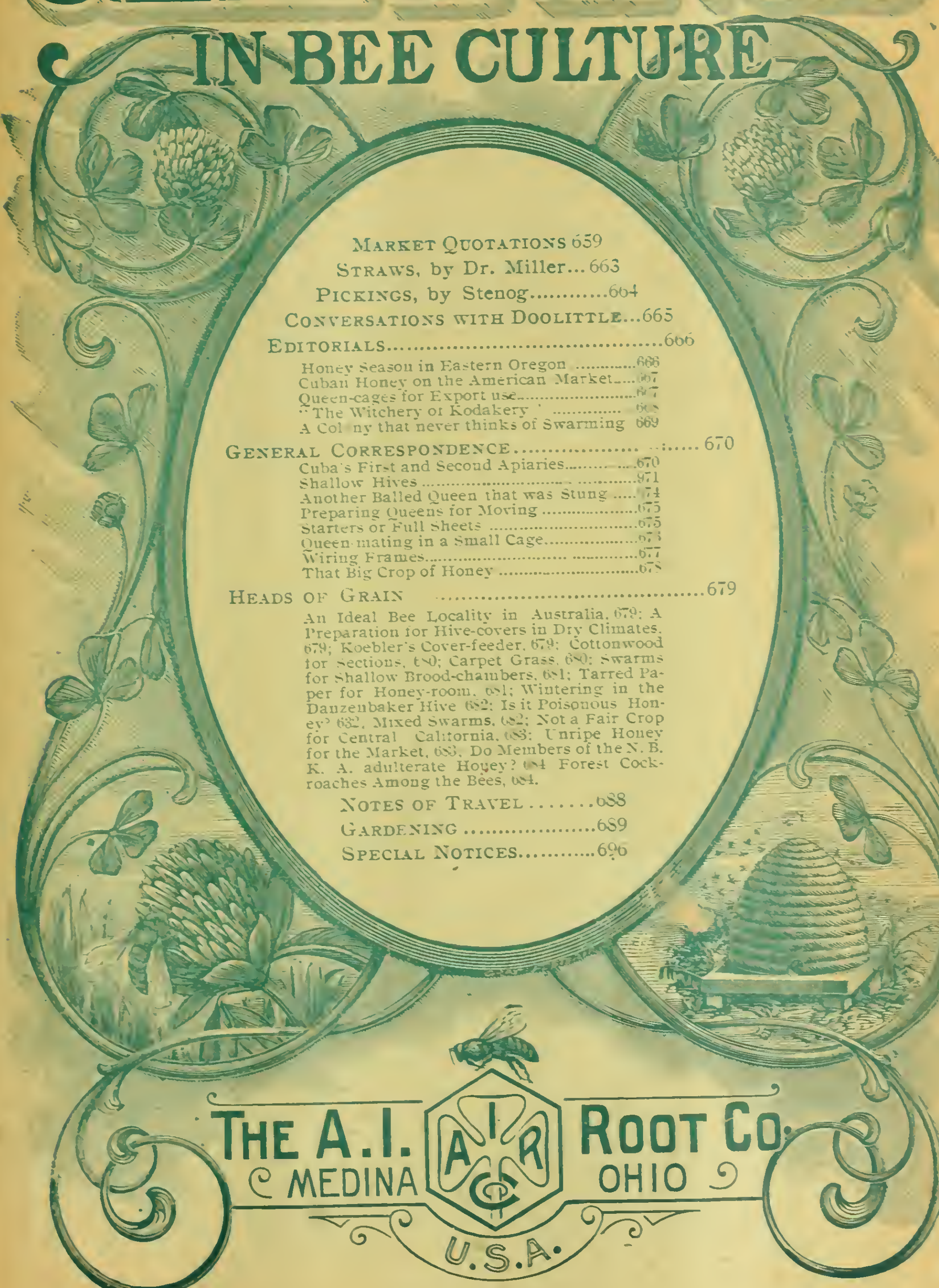
GLEANINGS IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued, or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

AUG. AND SEPT. PRICES:

Tested, each	$1 25
Select tested, each	1 50
Warranted purely mated, each	75
Same, per half dozen	4 25
Same, per dozen	8 00
Untested, each	65
Same, per half dozen	3 75
Same, per dozen	7 00

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Lyonsville, Mass.

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COMB and EXTRACTED

HONEY

If You have Comb Honey to Sell,

Write us Answering these Questions.

Quantity................................
Gathered from ....
Put up in ....sections
Price at which you will ship.

If You have Ext'd Honey to Sell,

Quantity................................
Gathered from ....
How put up..............................
Price at which you will sell.
Send sample ....

We Want the BEST Grades in ANY Quantity.

THE A. I. ROOT CO.,

MEDINA, OHIO.

TORONTO

is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-Keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

E. GRAINGER & CO.

12 Yonge Street Arcade.

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DANZ. HIVE

The comb-honey hive is one of our specialties. Send for booklet telling about it.

We are the jobbing agents for The A. I. Root Company in Michigan, and want the name and address of every bee-keeper in the State, whether you have one swarm or 500.

M. H. Hunt & Son

Bell Branch, Mich.

Northeastern and New England

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Me.

Mgr. The A. I. Root Co's. N. E. Agency.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

BUFFALO.—There is hardly any more demand for old comb honey. A little new is coming in and meeting with a fair demand for white comb at 16@17. There is some inquiry for white extracted, and very little offered for sale. Fancy white comb, 16@17; A No. 1 white comb, 15@16; No. 1 white comb, 14@15; No. 2 white comb, 13@14; No. 3 dark comb, 11@12; No. 1 dark comb, 11@13; No. 2 dark comb, 10@11; white clover, extracted, 8@8½; amber extracted, 7@7½; dark extracted, 6@6½. Beeswax. 28@30.

W. C. TOWNSEND,
July 22. 178, 180 Perry St., Buffalo, N. Y.

MILWAUKEE.—This market remains quiet so far as honey is concerned. There is a favorable outlook for a good crop from white clover, as the fields are heavily laden with it. When the impression prevails among consumers that there is plenty, all will expect to get some, so we are looking for a good demand, and can encourage liberal shipments at this time but can not quote firm values. Fancy new comb would sell for 16@18; extracted, new or old, nominal, 7½@8½.

A. V. BISHOP & CO.,
July 18. 119 Buffalo St., Milwaukee, Wis.

CINCINNATI.—The demand for honey continues slow. New comb and extracted begin to be offered largely. Prices show a downward tendency. Extracted, amber, in barrels, 5@5½; alfalfa, 6½; white clover, 7@7½. Comb honey, fancy water white, will bring 14@15. No demand for lower grades. Beeswax, 27@33.

C. H. W. WEBER,
July 20. 2146 8 Central Ave., Cincinnati, Ohio.

CHICAGO.—Some consignments of the crop of 1903 are offered on this market. The comb is, in most cases, No 1 to Fancy, and the quality is the very best. It is many years since this neighborhood yielded in quantity and quality as now. Demand has not come for it yet, but will within a short time, as it is being told that an abundant harvest is upon us. Prices asked are 13@15. Extracted sells slowly at 6@7 for fancy white; 5@6 for amber. Beeswax, 30.

July 20. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

PHILADELPHIA.—Extracted honey has been arriving quite freely for a few days, and indications point to a low market, although prices are ruling very firm on account of California having a light crop. We would quote amber, 6½@7½; fancy white, 7@8. No new comb honey in the market. Beeswax firm at 28 We produce honey, but do not handle it on commission.

WM. A. SELSER,
July 20. 10 Vine St., Philadelphia, Pa.

TOLEDO.—New honey is coming in, and finds ready sale as follows: Fancy white clover in no drip cases, 16; same, No. 1, 15; amber, 14. White clover, in barrels, 6½; amber, in barrels, 5@5½. Beeswax firm at 28@30.

GRIGGS BROTHERS.
July 20. 214 Jackson Ave., Toledo, O.

SAN FRANCISCO.—New comb, white, 14½@15; light amber, 13½. Extracted, water white, 6½; light amber, 6; dark amber, nominal Beeswax, 32.

July 13. ERNEST B. SCHAEFFLE.

SCHENECTADY, N. Y.—But very little new comb honey has come forward yet, and the price is not established. White clover will probably be a short crop in this section, but that from buckwheat may be large.

July 21. CHAS. MCCULLOCH.

ALBANY.—Honey market is quiet, light demand. Some new Southern comb is arriving, and sells at 15. We look for a good demand and good prices next month. The crop in this section is light.

MACDOUGALL & CO.,
July 20. 375 Broadway, Albany, N. Y.

TORONTO.—The honey crop appears to be good in this locality, although very little honey is being offered. It is not easy now to give any figures. Prices remain about the same, with very little demand. Beeswax, 28@33.

July 23. E. GRAINGER & CO.

DENVER.—Stock of old comb honey is all cleaned up A few cases of the new crop have come in, and sold readily at $3.25 per case. No change in price of extracted honey. Beeswax wanted at 22@26, according to color and cleanliness.

COLORADO HONEY-PRODUCERS' ASSOCIATION,
July 10. 1440 Market St., Denver.

FOR SALE.—New extracted eoney, from 7c up. Several sizes of packages. Sample 10c.

I. J. STRINGHAM, 105 Park Place, New York,

FOR SALE.—Comb and extracted clover honey. Extracted, 7½c; comb, 12½c.

W. D. SOPER, Jackson, Mich. R. D. 3.

FOR SALE.—Two hundred 24-section cases fine white-clover comb honey, at Ursa, Ill. Best offer gets it.

JOHN A. THORNTON, Lima, Ill.

FOR SALE.—Alfalfa honey. Extracted in 60-lb. cans, and about 20,000 lbs. in comb. Prices on application.

CHEEK & WALLINGER, Las Animas, Colo.

FOR SALE.—Fancy comb and extracted honey; extracted in 60 lb. cans Prices quoted on application.

WILLIAM MORRIS, Las Animas, Col.

FOR SALE.—10,000 lbs. fancy white-clover honey, mostly comb, in 4¼ sections Extracted in 60-lb. cans.

JOHN HANDEL & SON, Savanna, Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—New honey. 2000 lbs. mostly alsike clover honey. Put up in 60 lb. tins, 2 in case; new cans and cases: $9.00 per case f. o. b. cars or boat. Send 6c for sample. Address IRA D. BARTLETT,
Lock Box 156. East Jordan, Mich.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—To hear from producers of comb honey in California and Nevada. It may sound unreasonable, but we have probably bought, for spot cash, more comb honey than any firm in the United States, during the past three seasons. We can, no doubt, do you some good. THOS. C. STANLEY & SON,
Manzanola, Colo., or Fairfield, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM,
1318—1324 Union Avenue, Kansas City, Mo.

The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for w catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, New York.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

I. J. Stringham, New York City

105 Park Place.

OUR 1903 CATALOG is yours for the asking. The supplies listed in it are practical and up-to-date. We furnish every thing a bee-keeper uses, and will not be undersold. Silk-faced veil, 40 cts.; three for $1.05, postpaid. Full colonies of Italian bees in hive, $7.50; nucleus colonies, $3.50; tested queens, $1.00; untested, 75 cts. Apiaries, Glen Cove, Long Island.

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Prompt Shipments.

If you are in a hurry for supplies send us your order and we will surprise you with our promptness. All goods shipped within 10 hours after receiving the order. Over a million sections and two tons of foundation now on hand. Hundreds of hives, and all other supplies **READY FOR IMMEDIATE SHIPMENT.**

Lewis's and Dadant's Goods.

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Gleason & Lansing,

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Jobbers of Comb and Extracted Honey.

We have a large jobbing trade in comb honey, and can use any-sized shipments up to car lots. We want 5000 cases as early shipment as possible this season and can use all grades. Will buy delivered in Buffalo or handle for your account. . . . . .

Correspond with us before placing your output this season.

REFERENCES:

Manufacturers & Traders National Bank, Buffalo, N. Y., any Express Co., Dun or Bradstreet Agencies, Buffalo, N. Y.

THE PERSISTENCY

which we exercise in the careful selection from year to year of only the choicest breeding queens has brought the Robey strain of Italians up to the highest standard of excellence as regards their docility, prolificness, and honey-gathering qualities.

This particular strain is the progeny of selections from choice stock of Root's red-clover queens, and Moore's crossed with the very best of our own rearing.

Warranted queens, 60 cts. each in any quantity. Satisfaction guaranteed or money refunded.

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Circular Free.

STANDARD-BRED

ITALIAN QUEEN BEES

Our untested queens give excellent satisfaction. They are bred by the best breeders, and are up to standard.

Prices are as follows:

1 Untested Italian Queen..............$ .75
3 " " " $2.10
6 " " " $4.00

We are sending them almost by return mail.

The Weekly American Bee Journal and one of these fine queens, both for $1.50. Sample copy of the Bee Journal sent free. Ask for it. You ought to have it every week. It is a great bee-paper—so they say.

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RETAIL AND WHOLESALE.

This foundation is made by a process that produces the superior of any. It is the cleanest and purest. It has the brightest color and sweetest odor. It is the most transparent, because it has the thinnest base. It is tough, clear as crystal, and gives more sheets to the pound than any other make. **Working Wax into Foundation for Cash a Specialty. Beeswax Always Wanted at Highest Price.** Catalog giving full line of supplies, with prices and samples, free on application.

E. Grainger & Co., Toronto, Ont.,
Sole Agents for Canada.

Gus. Dittmer, Augusta, Wis.

REMARKABLE.... **The Universal Satisfaction Our Queens Do Give.**

STERLING, GA., JUNE 29, 1903.—I was showing my father yesterday how my bees, which I bought from you, were outworking every thing in my apiary. Send me 4 Buckeye Red-Clover Queens, and 2 Muth Strain Golden Italians. I will order more after next extracting. THOS. H. KINCADE.

Buckeye Strain Red-Clover Queens. They roll in honey, while the ordinary starve.
Muth Strain Golden Italians. None Superior.
Carniolans. None Better.

Untested	$ .75 each,	6 for $4.00
Tested	1.50 each,	6 for 7.25
Select Untested	$1.00 each,	6 for 5.00
Select Tested	2.50 each,	6 for 12.00
Best Money Can Buy	$3.50 each.	

Send for Catalog of Bee-Supplies; Complete Line at Manufacturer's Prices.

The **Fred W. Muth Co.,** **Front & Walnut,** **Cincinnati, Ohio.**

BEE-KEEPERS

We have on hand ready for PROMPT SHIPMENT
The Largest Stock we ever Carried
of HIVES, SECTIONS, and all Other SUPPLIES.

Perfect Workmanship and Finest Material.
All parts of our Hives are made to fit Accurately.
No trouble in setting them up.
Our customers say it is a pleasure.
We are not selling goods on NAME ONLY,
But on their Quality.

G. B. LEWIS COMPANY,
Manufacturers Bee-Keepers' Supplies.
Catalog Free. **Watertown, Wisconsin, U. S. A.**

QUEENS NOW READY TO SUPPLY BY **RETURN MAIL**

Stock which can not be excelled. Each variety bred in separate apiaries, from selected mothers; have proven their qualities as great honey-gatherers.

GOLDEN ITALIANS have no superior, and few equals. Untested, 75 cts.; 6 for $1.00.
RED-CLOVER QUEENS, which left all records behind in honey-gathering. Unt., $1; 6, for $5.
CARNIOLANS—They are so highly recommended, being more gentle than all others. Unt., $1.

Root's Goods at Root's Factory Prices.

C. H. W. WEBER, 2146-2148 Central Avenue, CINCINNATI, OHIO.
(Successor to Chas. F. Muth and A. Muth.)

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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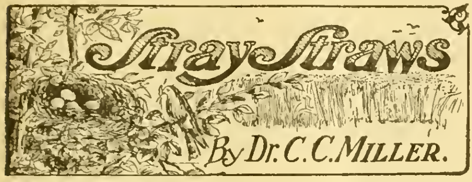


Stray Straws

By Dr. C. C. Miller.

THAT A. C. MILLER COVER, p. 632, looks like a good thing.

I HAVE HAD dead mice in hives several times, and they always dry up so dry as to appear inoffensive.

THE PROPOSED AMENDMENTS, p. 624, are good, excepting as to the number of directors. Wouldn't six be better than twelve?

BRO. DOOLITTLE might have added, p. 622, that the advocates of feeding back make a point of having the right bees for the work—blacks, I think, being preferred.

I'M SURPRISED TO SEE, p. 635, that bees will not work down upon foundation in a story placed under the brood-nest. In this locality they do. If I mistake not, Simmins' non-swarming plan consists in keeping foundation always below the brood-nest.

"QUEEN-RIGHT" is the word we've always needed to express that a colony was not queenless but had a good laying queen; and Fr. Greiner is the man bright enough to transplant it from the German into the English language. He thus uses it in the *American Bee-keeper*. Sehr gut, Herr G.!

IN SOME CASES, Mr. Editor, you had bees nearly abandon work in the upper super and begin work in the empty super below, p. 620. Bees are queer things. I've had them do nearly the opposite — utterly neglect the under super and finish work in the upper. But that was late in the season.

A FEW BASSWOODS on the place were full of blossoms, and very fragrant, but I never saw a bee on them. Could it be possible there was no nectar present? or were the bees too busy on white clover? Neither did I find more than a scattering bee on sweet clover till after the middle of July, although there was abundant bloom many days before.

O. O. POPPLETON writes that we are mistaken in saying there is no cure for paralysis. He is very positive he has cured it with sulphur. Diseased colonies yielded to the treatment every time, while those side by side untreated remained diseased. Mr. Poppleton is a man whose word counts.

FURIOUS SWARMING at Medina is mentioned, p. 623, and it's the worst here I ever knew. Young queens, shaken swarms, and every thing else, seem crazy to swarm. It has generally been considered that, when bees get to storing in quantity, they were less inclined to swarm; but this year it seems just the opposite — the heaviest storing and the most swarming I ever knew. And withal the bees are cross beyond understanding, right while the flood of nectar is on.

IF I UNDERSTAND the matter rightly, there's to be a meeting of bee-keepers at Los Angeles, Aug. 18—20, and a number will leave Chicago for that place Wednesday, Aug. 12, 10 P. M., stopping over Sunday at Grand Canyon, reaching Los Angeles Tuesday, 18, 8 A. M. That's quite a time to be on the way; and when I get tired enjoying the scenery I can rest myself fighting with a certain editor from Medina. The worst thing about it is to get the bees to agree to be good for so long a time while I'm away.

I DON'T KNOW what's the best arrangement of supers on hives; but at presen't we have settled upon this order: An empty super is put next the brood-nest; next above this the super nearest completion, then the next nearest completion, and so on, the one least advanced being on top. If it seems possible that more room may be needed, an additional empty super is put above all. Next time around this upper super generally has the foundation drawn, but no honey in it — sometimes a little honey, and sometimes the foundation not drawn at all.

I HAD FIFTY zinc hive-covers made to order, double, with air-space, and having now had them in use about a year I find them good. The Medina folks, however, made an improvement not in the specification, and it doesn't work well. Instead of simply nailing the zinc on at the sides they nailed wooden strips over it. That's worse than nothing, for the shrinking and swelling of the wood throws the zinc above the wood, and it can't get back into place. I have torn off the strips and nailed on the zinc, and now they're all right. If wooden strips are nailed on at all (as when paper or cloth is used), the cover should be made enough narrower so that the entire width, strips and all, shall just equal the width of the hive, and the strips should come down flush with the lower surface of the cover.

IMMEDIATE INTRODUCTION of queens seems a desirable thing, and I think I've come pretty near to it. Some one (who was it?) said a queen was better received when well wet. I carried the thing further, in some cases drowning the queen till she curled up, apparently dead. I put it to this severe test: I made a full colony exchange queens with a nucleus, putting the queen directly from one hive to the other without any delay except the two or three minutes to drown the queen. Each queen went to work laying. I did the same thing in two other cases, and the queens were received all right in the full colonies; but when I looked next in the nuclei the queens were missing. Possibly the thing may be made always reliable by learning a few kinks—whether to use warm or cold water, how long to drown them, etc. Does the drowning injure the queens? I don't know. It doesn't seem to.

EVERY FOUR OR FIVE DAYS we overhaul the supers on the hives, taking off those that are finished, and giving empty sections where needed. The empty super is put below all the others; and as few have less than 4, and many 5 and 6 supers, it's a good deal of work to lift them all off for the sake of putting the empty one under. So in one of the rounds a week or so ago, partly because it was easier and partly for the experiment, we lifted off no supers, but just put an empty super on top wherever the upper super appeared pretty full. That one experiment was enough. When we made the next round, four or five days later, we found work not pushed so very hard in the added super; but in the other supers wax and burr-combs plastered everywhere in wasteful profusion, built on to the separators and between the supers, spoiling the appearance of some of the sections besides a waste of wax that might have paid for the extra work. If only two supers had been on the hive, so that the upper empty super would have been nearer the broodnest, likely the bees would have begun work in it more promptly, but the burr-comb business would have been worse.

Pickings from Our Neighbors' Fields
BY
"Stenog."

ROCKY MOUNTAIN BEE JOURNAL.

In speaking of this exchange, Mr. Chas. Adams says, "It is getting to be quite a good paper." Hardly. It has been that from the first, so far as bee-keeping is concerned. Mr. Morehouse has a new assistant at the editorial helm. At last accounts he had no first name. More house room will be needed, probably.

* * *

Under the name of "idiotic drivel" Mr. Morehouse quotes the following from the Denver *Times:*

> The morning was spent in an informal discussion on the training and education of bees. It is a well-known fact that bees may be fed so as to produce any flavored honey that may be desired. In fact, they appear to enjoy producing peculiar combinations. According to the president of the society, they have been known to flavor their product with skunk oil. The great difficulty with these experiments was in the naturally energetic bee growing so lazy under forced feeding that he refused to hustle for his master. The discussion was consequently on the best ethical training for a bee.

The writer does not think it is beyond the confines of charity to say that, as the result of long observation, he concludes the great herd of reporters for our leading dailies are remarkable for only one characteristic—opaque ignorance of practical matters; or perhaps they are so devoid of conscience as to *prefer* a garment of falsehood if it be decked with a few spangles of truth to make it plausible to the uninformed. How did that idea about "skunk oil" originate? Probably the reporter heard skunk *cabbage* spoken of as one of the earliest sources of pollen; and, never having before heard of that plant, substituted skunk *oil* in its place. And yet such writers have more to do in educating the people than all the schoolteachers and ministers in the land. Why will people believe a manifest absurdity sooner than a self-evident truth? I am glad that Mr. Morehouse knows how to head his criticisms with suitable language.

* * *

BRITISH BEE JOURNAL.

The unending views of British apiaries in the *British Bee Journal* are a source of pleasure to its readers. The odd-shaped hives, the strange appearance of the buildings, the dense foliage, and the fine appearance of the men and women whose faces appear in the half-tones, make up a fine study for the American eeader.

* * *

From July 15 to Sept. 19, 24 bee shows are advertised to take place in England. That speaks volumes for the interest taken in the production of honey, and for the perfect organization of bee-keepers in that island. Some of these shows are in connection with agricultural exhbiitions. The dense population of England, equal to half the United States squeezed into the one State of Illinois, renders the production of any article of food of great interest.

* * *

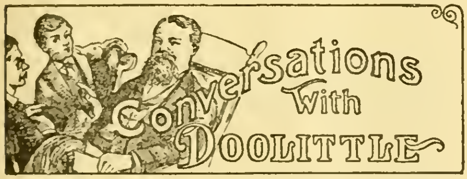
Concerning the spread of foul brood keeping pace with the introduction of frame hives, Mr. L. S. Crawshaw says:

> It is seriously argued that disease is more rampant now than in the old skep days, owing to its more ready propagation by contagion, and the loss of the check undoubtedly exercised upon it by the annual destruction of combs. But are these the full facts? What complete knowledge have we of the range of the disease in skeps? How was it ever possible to judge of this accurately, or to estimate it at this day? Is the testimony of the skeppist upon the point reliable? Most emphatically not! Ask to-day one of this school—whether the possessor of frame hives or not—if he has foul brood, and he will most likely assure and reassure the negative, while an examination may show his back garden to be a hotbed of the disease. Does he know it? Probably not. and here is half the trouble, for his bee-keeping is built upon a foundation of ignorance and superstition which the skep hive does much to foster and protect. "But the disease has spread." That may be possible, only do not mistake better statistics for increase of the complaint. It may have spread. It must in the nature of things, do so; but it remains to be proved that the spread is greater than would otherwise have been, and that it is still spreading more rapidly in spite of all associated effort to reduce it.

IRISH BEE JOURNAL.

Concerning foul brood a writer says:

> "We know that the microbes causing foul brood retain their vitality in honey for some time, but just how long we do not know. That the spores of *Bacillus mesentericus* will germinate after being steeped in honey for over a year, I have very great doubts; and if a few years' immersion in concentrated honey is fatal to them, we have a clue to the reason why bees store, and keep in store, large quantities of honey" . . . "If the microbes causing foul brood could be exterminated there would be no bee-keeping—the bees would not store honey enough to make it an object."



BEES DESTROYED BY MOTH-WORMS.

"Good morning, Mr. Doolittle. I am a beginner at bee-keeping, and come down from Maine to have a little talk with you about moth-worms. You know what I mean?"

"Yes, Mr. Jones, I know the larva of the wax-moth when I see one. But what did you wish to know about these larvæ?"

"Going out among my bees the other morning I saw two worms at the front of one hive and five at another. I told a neighbor of this, and he said I would have to look out for these worms or they would destroy my bees, as he used to lose more or less by them years ago when he kept bees. Will these worms destroy bees?"

"A good colony of bees is never destroyed by the larva of the wax-moth in this locality, and I doubt if such is the case in Maine or any other part of the world. Such expressions as your neighbor gave voice to shows his ignorance, as no person would make the assertion that he had lost bees from moth-worms unless he was ignorant or careless, or both."

"Why do you say careless?"

"Because the carelessness of people making such assertions is shown in that they do not discover that their bees are gone till the combs are destroyed by worms; and they also show their ignorance, because, if well posted in all that is going on inside the hive, at all times, they would know better. In most localities where bees can live, if the combs are not occupied with bees, and have not been exposed to a degree of cold as low as zero, when warm weather comes in the summer we always find the larvæ of the wax-moth upon these combs, and more abundant on those which have pollen in them, or have had many generations of brood reared in them. When once under headway it takes but a short time for these larvæ to reduce the combs in a whole hive to a mass of webs."

"Can not the worms do this while the bees are on the combs?"

"No. The worms, or larvæ, can not come into full possession of these combs so long as there are bees upon them, although we find here and there a larva which may have eluded the vigilance of the bees by getting in the septum of the comb, under the brood, or by being under the capping, over the heads of the immature bees. But even here they are secure for no certain length of time; for before they reach maturity they are ferreted out and cast from the hive like those you saw at the entrance of your hives. The Italian bees keep these worms out much better than the hybrids or blacks. Which do you keep?"

"I have only black bees; but if the Italians will keep these worms away I shall have some. Will a small colony of Italians protect their combs from these worms?"

"Yes. I have known only a mere handful of these bees to protect a whole hive of combs fully, the worms being kept in subjection so long as a few score remained."

"Then you think my neighbor's died from some other cause than worms, do you?"

"Yes. If from any cause a colony becomes hopelessly queenless, the bees all died of old age in from fifty to sixty days from the time the last bee emerges from its cell, if in summer; and as soon as the bees are gone there is no restraint on the worms, thus giving them full sway, and in a short time the combs are ruined."

"Why should bees ever become hopelessly queenless?"

"If from any cause the queen dies while there are no eggs or larvæ in the combs, the bees in that colony have no means of rearing another queen, so are hopelessly queenless from then on. The most common cause for bees becoming thus hopelessly queenless is when, after swarming, the young queen flies out to meet the drone, she becomes lost by entering the wrong hive; or being caught by birds, or otherwise she fails to return. All brood was sealed at about the time this queen emerged from the cell, so that, with her loss, there is no chance for that colony to live unless the apiarist finds it out in time and comes to the rescue. And from my own experience, and the testimony of scores of others, more colonies become hopelessly queenless in this way than by all others combined. Now do you think that colonies having thus lost their queen were destroyed by worms?"

"It would not look that way."

"Certainly they were not. The colony was destroyed by the loss of the queen at mating time, and the moths came in as an effect. Thus we see that to talk of worms destroying colonies of bees is fallacious."

"Well, how are we to know in the matter of the loss of a queen?"

"If we have an eye to business we shall see from outside observation that something is wrong with the colony long before the moths can take possession of the combs, even if we do no general manipulation of hives; and as soon as we see that something is wrong with any colony it is our business as bee-keepers to open the hive and find out what that wrong is, in time to save the colony."

"If you found a colony that had lost its queen at this time of the year, or at any other, so it was hopelessly queenless, what would you do?"

"The finding of any colony without brood in any form, during the spring and summer months, gives assurance that said colony is hopelessly queenless. But this is not always the case, as they may be tolerating an old worn-out queen, or, what is more frequently the case, a virgin queen, which, through crippled wings, or some other defect, is unable to fly out to meet the drones. In this way a colony may be hopeless, but not queenless—hopeless, as we know, but it does not so appear to them, and therefore they will love and cherish this apology for a queen till all die of old age, not even accepting a good queen given them by the apiarist."

"Is there no way of finding out whether they have such an apology for a queen or not?"

"Yes, usually. This is done by giving the suspected colony a frame of brood in which there are eggs and young larvæ. If they have no queen of any kind they will nearly always go to constructing queen-cells on this brood; and when they do this you may be very positive that they were hopeless as well as queenless, and that they will accept any queen you give them. And should you not have a queen to give them at once, this frame of brood will help them to hold out till you can give them a queen; and it is always the proper thing to do, on finding any colony without brood in any shape in the hive."

"I must be going now. I wish to thank you for what you have told me, for I shall have little fear of the worms after this."

Editorial
By E.R. Root.

WHITE CLOVER IN WISCONSIN.

I have been making a flying trip up through Eastern Wisconsin. White clover, I think I never saw so much of it in my life. The fields are covered with it in great white masses in the pastures and along the roadsides. Basswoods were blooming well. The bee-keepers of Wisconsin should be "in clover" this year.

SWEET CLOVER.

There seems to be a great abundance of sweet clover this year—more so than usual. It is spreading in our locality to such an extent that our local residents—people who never travel much, but who ought to know better — are telling how "A. I. Root once scattered this clover all over the county for his bees." It does no good to refute this nonsense, for they won't believe it; but the fact that sweet clover is spreading all over the United States goes to show that there must have been a good many A. I. Roots scattering seed or else the whole story is a hoax, as it certainly is.

THE HONEY SEASON IN EASTERN OREGON AND WASHINGTON.

The following report, for the reason given, came too late for our previous issue, but we are glad to put it before our readers at this time:

> Inquiries for condition of honey crop, which we made on receipt of your request, did not reach us in time for your July 15th issue. We have just received word from Eastern Oregon and Washington. It is a little early to make any kind of estimate of what the honey crop will be in Eastern Washington, but probably below the average. In Eastern Oregon the weather has been damp, with high winds; and as it is now so late in the season, dry weather is to be expected, so that the general opinion of bee-men in that section is that the crop will not be more than half the average. However, as we said before, this section, or the whole Pacific Northwest, has no honey to offer on the market, as they do not produce one-half the amount consumed. PORTLAND SEED CO.
>
> Portland, Oregon, July 16.

ANSWERING QUESTIONS.

Since I have increased the Heads of Grain department—that is, inserting more questions and answers, my volume of correspondence has increased enormously. I find it is impossible to publish more than a small portion of the questions that come in to us; and the rest, in the case of regular patrons or subscribers, are answered privately. Now, I have something to do besides answering letters; but I am perfectly willing to respond to all inquiries. But our friends will save me a great deal of time if they will make their questions brief, write on only *one side* of the sheet, and number the pages. Long letters are apt to be delayed, and perhaps never answered. It takes time and brains to dig a question or two out of a long rambling letter. Get down to the meat of your inquiry at once, leaving out all unimportant details.

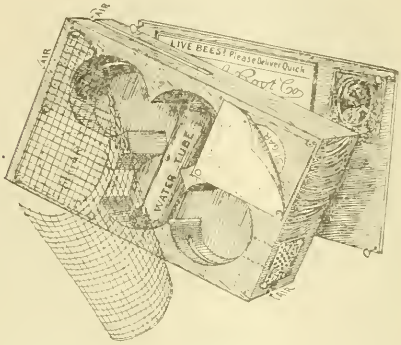
CUBAN HONEY ON THE AMERICAN MARKETS.

THERE have been fears expressed several times that Cuban honey might have a serious effect on the American market for American honey. The great bulk of this West-Indian product, as I have before stated, goes to Europe, because it is of such poor quality, mixed with dirt, dead bees, mashed brood, and comb, that it would hardly pass muster, even for manufacturing purposes, in this country. Where the manufacturers (bake-shops and confectioners) have had one shipment they want no more of it at any price. But the modern American bee-keepers in Cuba are putting up a better grade of honey, and many are working toward comb honey, and are putting out a very fine quality of it.

It is this that has created a *furore* (and needlessly so) among the American bee-keepers; but the fact of it is, it comes to our markets *at just the time when they are bare of the American product*, and to a certain extent it helps to discourage adulteration; for it has been noted that, when real honey is scarce, the dealers are inclined to put in honey pieced out with glucose. If Cuban honey produced by American bee-keepers will have a tendency to keep adulteration away, the bee-keepers in this country can and should welcome the product of our brothers who are located on Cuban soil. So far a first quality of Cuban comb honey brings about the same prices as the first quality of American honey; and so long as that condition prevails, no one need fear Cuban competition very much. If the Cuban honey were thrown on our markets at just the time when American honey was being taken from the hives, the condition would be very different; but because it comes when our markets are bare of first quality, or nearly so, and because Cuban comb honey is of fine quality, the price will be maintained at the American level.

CAGES FOR SENDING QUEENS TO FOREIGN COUNTRIES.

ALONG last fall, J. P. Moore, who has been furnishing us breeding-stock, incidentally remarked that he was sending about 95 per cent of his queens through alive to foreign countries. Desiring to get further particulars on the style of the cage, and how he was able to accomplish it, we wrote him, and in November of last year, in response, he sent a sample of the cage, with a letter for publication. We had an illustration made, but held the matter until it would be seasonable, and now present both the cage and the letter to our readers:


AIR
AIR
LIVE BEES! Please Deliver Quick
Root Co
WATER TUBE
AIR

EXPORT CAGE WITH MOORE'S WATER-BOTTLE.

Mr. Root:—I send you a provisioned cage (except the water) such as I use for mailing queens to countries like Jamaica, with good results as reported. Fill the tin tube with water by means of an oil-can with a very small nozzle and spring bottom, to force the water into the tube, and your cage is ready for the queen and bees. For mailing queens to England, I have been using two of these cages fastened together face to face without any wire cloth. One tube was filled with honey, and the other with water. The queens and escorts were reported in the finest of order when received.

The candy is made of powdered sugar and honey, with the addition of a little glycerine, to prevent it from drying out and becoming hard. It is made as follows:

To seven cups of powdered sugar add one cup of nice well-ripened honey; knead thoroughly, and make into three or four balls. Let it stand a few days; then break the balls up and pour a little glycerine over the mass, and work in more powdered sugar. Make into balls as before, and let stand a day or two, when it is ready for use if you have added enough sugar and not too much. If the balls flatten down, the candy is too soft, and must have more sugar; but if they retain their shape, and have a moist appearance, the candy is just right. When just right, it is soft and pliable, and retains its shape when made into balls.

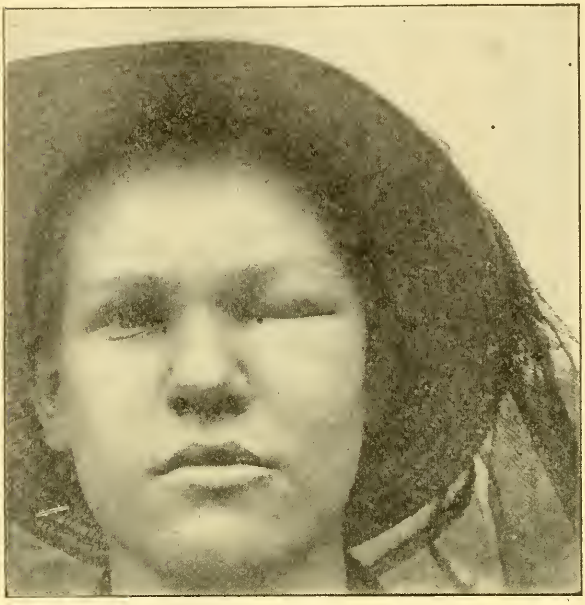
The cage was made by H. G. Quirin, of Parkertown, O., but the tin tubes are of my own make. The corks are put in—one in each end—and then dipped in melted wax to make them water-tight. To fill with honey, put the cork in one end of the tube and dip in wax; then pour hot honey into the other end (by means of a very small funnel), until nearly full; insert cork and dip in wax. J. P. MOORE.

Morgan, Ky., Nov. 12.

The one here shown is a regular Benton six-hole cage. Through the center holes there is a tin tube. Years ago we had something of this kind in our cages that we sent out, and our decision was at the time that it was a good thing, but later experiments for short distances, in comparison with cages having *no* tubes, convinced us, at least, there was no advantage in having the water-bottle. But Mr. Moore's experiments would seem to indicate, in view of the success he has attained, that we had better supply the cages with water for export at least.

"THE WITCHERY OF KODAKERY" AND THE ITCHERY OF BEE-STINGERY.

As our readers are aware, picture-taking has been one of my pastimes; but of late years it has come to be a part of my regular business and work. I never go out on bee-keeping tours without having one or more kodaks loaded ready for any subject that may take my fancy; and even at home I keep one or two instruments all prepared ready for any special thing that may arise; for we never know what the bees will do or what we shall have on hand at any particular moment.



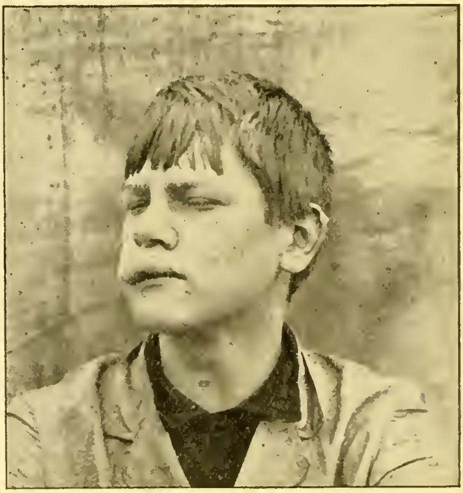
THE EFFECT OF A BEE-STING NEAR ONE EYE.

A few days ago Mr. Phillips, our head apiarist, came into the office and remarked that one of our bee keeping students had got stung on the eye, and suggested I had better go down and "kodak" him. I did so, of course obtaining his consent. On another occasion the same student received a sting on the lip, and again the kodak was brought to play. The two pictures are reproduced before you.

The young man in question is learning the business, and so far he has found that the ways of a bee keeper are not all honeyed sweetness. Hard work, hot sun, and now and then a sting, with a swollen face, are a part of his "experience." So far he has been "initiated" in the manner shown in the pictures a number of times; but he hopes ere long to get along without the swelling.

Perhaps some may question the propriety of putting in a picture showing the distorted features of a person suffering from an accident or bee-sting. I obtained the free consent of the young man to use the pictures because I wished to illustrate the effect of stings, as some of our readers, and probably a good many of them, do not know how badly a face may be swollen from just one sting. These pictures are reproduced, not because they are the worst cases of swelling we have had, but because they are an average among those who are just getting inoculated with the poison; for it is well known that, after one has been stung a certain number of times, he becomes to a great extent immune to bee-stings. While the pain is just as acute, the swelling and consequent fever do not appear—at least to only a very moderate extent.

A few days after these pictures were taken, Mr. Phillips said he had a fine nice swarm hanging from one of the grapevines, and remarked that it would make a pretty picture. Two years ago I offered a prize for the best picture of a young lady holding a swarm of bees. Desiring to see what I could do in this line myself, by dint of coaxing I got one of the young women in our office to put on a bee-veil and bee-gloves, and take her position before the swarm, as if about to hive it. She did so. The kodak clicked, and the result is before you. A companion picture to this has been sent to one of our magazine writers, and it is possible it will appear in due time.



EFFECT OF ONE BEE-STING ON THE LIP.

We have other interesting subjects which we will present from time to time, of actual scenes taken in the yard while the work was in progress. These particular pictures are to be used in the A B C of Bee Culture, the two first under the head of "Stings," and the last under the head of "Swarms."

"A COLONY THAT NEVER THINKS OF SWARMING;" A CONFESSION.

SOME little time ago Dr. Miller and I had a little tilt over the first part of this subject. I was taking the ground that the new shaken-swarm plan was going to do away with many of our difficulties. While Dr. Miller admitted that shaking was effective, and could be made very useful, yet he still expressed a hope that we might some day breed a race of bees that would go on storing honey without swarming, the same as poultry-men have bred several varieties of hens that are non-sitters. I argued that the gain would be only trifling, because a colony could be shaken at the convenience of the apiarist, and thus all desire to swarm be taken away from them in advance. Well, now, for the confession. The events of the last few days have completely converted me to Dr. Miller's view of the matter. While I still have as much faith in the shaken method as I ever had, and while not one of the swarms we shook this season has essayed to go out again, yet a colony that will *stay* on its old brood-combs in its old brood-nest, and allow all its brood to hatch, is to be preferred because of the saving in the labor.

At the Harrington yard we shook perhaps a third of our colonies—perhaps the strongest ones. The remainder we left just as they were. When the honey-flow came on it was apparent that the shaking had set them back a little. They had, temporarily, at least, been deprived of their brood, and it takes a day or so right in the hon-

BEE-KEEPING FOR WOMEN.

ey-flow for the bees to recover themselves again to begin work. Then the brood, after it hatches, requires to be shaken again at the old entrance; and this causes another interruption, and possibly the loss of a queen. If the brood is not shaken back with the swarm after it hatches, then the shaken swarm will, before the season is entirely over, begin to feel the need of the young blood that would recuperate their fast-waning strength when it is most (if ever) needed in the whole season. But Dr. Miller's ideal colony that *never thinks* of swarming will at least keep right on working—keep all of its brood, save all the fuss and bother of shaking frames with starters in, the building of drone comb, and with all its reserve strength will go on magnificently producing honey. But the never-think swarm I think is still largely a will-o'-the-wisp, and so we shall have to content ourselves with shaking for the time being, and occasionally shinning up trees to bring back runaway swarms.

GENERAL
CORRESPONDENCE.

CUBA'S FIRST AND SECOND APIARIES.

A Few Mistakes Corrected; that Mammoth Steam-driven Extractor.

BY H. G. OSBURN.

I beg permission to correct, through GLEANINGS, a few mistakes I notice (Mar. 1, 1903), in reference to the apiary my father established at Punta Brava in the late fall of 1883. As your guide was no other than that able bee-man, Mr. W. W. Somerford, it seems strange to me that I should have to correct his mistakes. A. J. King came to Cuba in the spring of 1881 with 100 nuclei of bees for J. N. P. Casanova & Brothers. At the same time, he advertised for a man who understood handling bees to accompany him to Cuba. At this time my father was working for some bee-man in New York, and, being of a roaming disposition, the novelty of the thing induced him to answer the advertisement in person, at their office in New York; and so it came to pass that, after all the purchases were made for a complete apiary, they set sail for Cuba. In the spring of 1881, arriving here with but small loss, the bees were at once shipped by rail to Casanova's large farm at San Miguel de Jaruco. Here the first modern apiary in Cuba was established, and it grew so fast, and prospered so well, that from this small beginning an apiary of over 600 hives developed in two years, and a large crop of honey was taken the second season; but I have not the figures at hand, much as I should like to reproduce them.

The mosquitos, fleas, and isolation, coupled with the extreme heat here in the summer, soon had a bad effect on Mr. King's temper; and whenever he would wish to walk it off beneath Cuba's blue skies, this mud, composed of 99 parts of "stickum," complicated the bill, so it was not many months before he decided "the game was not worth the tallow," and, turning every thing over to A. W. Osburn, took his departure for the States, never to return, to my knowledge. After making two good crops, and equipping the apiary with modern necessaries throughout, it was indeed a model apiary, nestling at the foot of tall mountains, vine-entwined and flower-laden. Kept as clean as a kitchen floor, it received its full share of admiration from many wealthy visitors who were often astonished at the magnitude to which the little bees can develop an industry. There is always an ebb time in our lives, no matter how perfectly we write our life's history. So the climax came one early morn, and for reasons not necessary to mention in this place my father returned to Havana. A few months after his departure, I believe it was, "the man who talks" blew over from Texas and eventually dropped anchor at this pioneer apiary. For a few months from now on the history of this place is varied by many different bee-men, including in its last days of declining glory the able bee-man, Mr. Fred Somerford. There was some 700 feet of running shed covered by the palm thatch. In the same spot Mr. J. H. Ellis now has a booming apiary of 300 swarms (in the last war every vestige of this once beautiful and modern apiary was consumed by fire, as was also the beautiful summer home of the proprietors. So ends the history of this forerunner of an industry that is fast assuming vast proportions.

APIARY NO. 2.

There is an old adage that tells us to "look before we leap." Have you ever thought how true this is? If more of us would heed the teaching of those four simple words, how much better it would be for us! On arriving at Havana the bleeding wound was soon healed by a flattering offer to establish another grand bee-ranch, this time for a nobleman with a full purse, and the string always ready to pull. No expense was to be shared or spared in making this the ideal bee paradise of the island. So with this object in view Mr. Maurice M. Dussaq and Mr. A. W. Osburn began looking for a suitable location, with the result that, after much travel, the farm "Santa Cruz" was selected. At that time, 1883, pineapples were not grown to any extent on the island. Santa Cruz lies about half way between Arara Aranas and Punta Brava, on the government stone road from Havana to Guanajay. At this time this was a fine location for bees, being near

Havana, and on a good road, all surrounding country being untilled pasturage lands. The start was made in the late fall of 1883, and at once some native bees were purchased. From a start of 43 native colonies, we developed in three years the finest apiary in the world, so far as we were able to ascertain. About 650 running feet of tile shed, 12 feet wide, was built to cover them, besides an extracting-house, 30×20 feet. No expense was spared, and every time any thing was asked for, double the amount was usually sent, and $3000, Spanish gold, was spent before a pound of honey was sold. The crops were considered big at that time, running from 45,000 lbs. to 60,000.

The climax in the history of this fine ranch was not reached until the fall of 1894 and spring of 1895, when it earned for itself the name of being the largest and finest apiary in Cuba (on the modern scale). This same season's crop broke all prevailing records up to that time, when two men and a boy took 73,000 lbs. from 6000 hives in five months, with the assistance of the steam-extractor. Our crop the previous winter had been good; and Mr. Dussaq, becoming tired of the business, offered it to my father on very easy terms, and he accepted the offer.

We now arrive at the birth of the steam-extractor. Having become tired of the slow process and hard work necessary to take 1000 lbs of honey a day by a hand machine, notwithstanding this was a Jumbo six-frame non-reversible machine, built (if I remember correctly) to order by A. I. Root, and shown in GLEANINGS for 1893, he began studying on the problem of power and larger machines, at the same time looking up a man who could build it after his ideas; and after a great deal of correspondence the machine was finally shipped. It cost about $300, and the dimensions are as follows: Circumference, 36 feet.; depth, 4 ft.; revolutions per minute, 250; comb capacity, 21. The reel is independent of the can. There is no center in the bottom of the can. The three-inch center-shaft stands in a heavy seat bolted fast to the floor, the top also being secured by bolting the seat to 6×6 pieces. There are 22 or 44 3-ft. arms, one inch square, steel, secured by heavy clamps bolted together. This machine was driven at first by a three-horse-power boiler; but as it took 100 lbs. of steam to start it, after the first season's use this boiler was sold, and another, an eight-horse-power boiler and engine, installed in its place. This extractor weighs 1300 lbs. We could never get enough honey to test it thoroughly; but suffice it to say, the best we ever did with it was 2500 lbs. in four hours, one man to run the engine, one to tend the machine, and a boy of 17 to uncap the combs; but it will be some time before even this record is broken.

This acme of perfection and skill as a whole is to-day an eye-sore to those of us who remember it before the war. In the summer of 1895 it was again sold back to the original owners, and this fact alone shielded it from the Spanish torch, while the insurgent torch gave it a free pass, as they knew the owners to be American. A notice, however, guarded the gate—"French property! no trespassing, please."

This apiary is the one Mr. A. I. Root has reference to in his March 1st issue, this year. Great as has been the growth of bee-keeping in Cuba in the last 23 years, it is as yet in its infancy; and vast trackless wildernesses of vine and shrub lie to-day beneath the shadow of stately mountains, secluded valleys, and rippling streams, each and every one of a thousand different varieties, yielding its tons of nectar yearly, only to be evaporated by the hot sun or fed upon by myriads of butterflies and ants. Thousands upon thousands of acres of trackless mountain-sides, upon whose fertile soil the sun has never shone, may be found here; the depredation of man has never marred nature's handiwork. It lies to-day unclaimed. Tropical flora through which the shy deer feeds unmolested, and the shrill note of the quail echoes, and innumerable specimens of the feathery tribes proclaim the extent of these wastes. The hum of the bee is often heard, however, as it gathers from each flower its load of sweetness, and, hastening off to some far-away cliff, it deposits it in some dark hole in the rocks, secure from robbers of all kinds. To the experienced eye this panorama reveals the great possibilities of Cuba as a bee-keeper's paradise; also the abundent provisions of nature for the maintenance of more if he be wise enough to reap the harvest she has laid before him.

Such is the history of this industry, and the possibilities of this enterprise founded on a modern scale 23 years ago by the writer's father.

[I remember well that big extractor, for it was built in our own machine-shop. The reel was a mammoth affair. But my own impression is that, with a modern eight-frame reversible extractor, driven by power, one could do as much work with less power, or at least keep ahead of the uncapper. With a hand machine (an eight-frame reversible) I myself kept up with one man uncapping, in California, for two or three hours; and if power had been attached I could have done the work much easier. As it was, I worked like a horse.—ED.]

SHALLOW HIVES.

Their Advantages Compared with Deeper Ones ; an Interesting Discussion of the Whole Matter.

BY W. K. MORRISON.

The lamented Rambler was a firm believer in a shallow hive, somewhat after the Heddon pattern ; and only a short while ago he mentioned his preference for a brood-chamber about 7 inches in depth. He was not the only one who believed in shallow hives; and perhaps if the editor were to poll a vote he would find a very large percentage of the bee-keeping fraternity in favor of shallow chambers, more especially those who are interested in the production of comb honey. Dr. Tinker has long advocated his shallow Nonpareil hive; and one of the oldest hives extant is the Bingham, which is, in truth, an extremely shallow one; and in England the standard frame is shallow compared with the Langstroth or Quinby. The controversy over the large or small hives will probably never end. I for one don't wish to add fuel to the smoldering fires of this disagreement; but having made many experiments along this line I wish to suggest how this dispute can be avoided, particularly by those who wish to follow the golden mean.

In my experiments I tried all depths between 4 and 13½ inches, and all spacings between 1⅛ to 1⅝; and the hives were of every conceivable shape—some of no shape. It is not necessary for me to go into detail regarding these experiments. One of the main points in any experiment is the possibility of carrying its teachings into practical execution; and with this end in view I finally decided on a six-frame as the best, for what I consider very weighty reasons.

1. The probability of making the brood-chamber, the extracting-super, and the comb-honey super all of one size, and perfectly interchangeable. Men of large experience will agree with me this is a vital point, and well worth sacrificing something to secure.

2. The desirability of securing a chamber which will *compel* the bees to build comb honey whenever nectar is coming in, without resorting to fussy methods which consume time. The shallow chamber accomplishes this as nothing else will. At the same time, the super should be large enough to accommodate, say, 48 or 50 1-lb. sections so as to avoid the expense and labor incident to the use of two supers.

3. The value of a frame that can be readily handled without fear of comb-breaking. For example, in shaking bees off the comb it is much easier to jar them off a shallow comb than a deeper one; and in the case of shallow-framed chambers it is possible to handle hives rather than frames; and where one man has 300 or 400 hives to manage, this is an extremely important point. Some of our modern hives are regular back-breakers to an extensive bee-keeper, even if they may not seem so to the small apiarist.

First, I will tell why 6⅔ inches was chosen as a good depth.

I arrived, at the end of my experiments, to the conclusion that a hive 20 inches long, 20 inches wide, and 20 high, would satisfy all requirements; and, curiously enough, the lamented Langstroth, in his later years, advocated a hive just the same size. His hive was 20 inches long, 20 high, and 17 wide; but in his later years he advocated a hive containing 12 to 14 frames, and I believe he was right in this.

To divide such a hive in two is all right for extracted honey, but hardly so for comb; besides, the chambers are rather heavy when full of honey. For this reason many have resorted to the eight-frame hive.

Dadant, I believe, was right in advocating large brood-chambers; but most bee-keepers dislike the heavy hives and unwieldy frames. I often wonder why so clever a man did not see that two shallow chambers would answer just as well, and avoid the objections. However, Mr. Dadant and I agree as regards the size of a complete hive. The editor of GLEANINGS also seems to agree with me, for some time ago he was trying to solve the question by using two regular eight-frame hives as a brood-chamber. The objection to this arrangement is found in the height; in fact, the hive is ill proportioned. It is vastly easier to get the queen to use two shallow chambers. Also, in the making of shaken swarms it is much easier to shake the bees from a shallow frame. Fancy shaking bees from a Quinby frame! and I for one don't like brushing.

The chief objection to shallow chambers has been that one chamber is too small for a lively colony, and two chambers are necessary for only a short period each season. The case simmers itself down to this: Any one chamber must be as large *in capacity* as a regular eight-frame chamber. One of the results of my experiments was, I found the best distance to space the frames is 1¼ inches from center to center. Even 1⅛ is sufficient; but 1¼ is just right for worker comb, while 1⅝ is the correct spacing for drone comb; and that is the reason why bees in a natural state adopt the wider spacing.

Those who do not wish to adopt a wider hive than the ten-frame can, therefore, get eleven frames spaced 1¼; and it is easy to secure twelve frames if the sides are reduced to ½-inch stuff, and the super widened to 16¼ inches, which does not entail much of a change. A deep super can use a taller section — in this instance, 6 inches in height; and this is how 48 to 50 sections can be accommodated—no small gain, surely. In the capacity for brood-rearing, or for honey-getting, my shallow chamber equals an eight-frame chamber, at the very least.

The way to use such a hive is easy. During the winter or off season one chamber is used; but when the swarming season arrives, the second chamber with drawn combs is added *from below*. This is a damper to the swarming fever. Later on, when the upper half has become pretty well filled with honey, it is removed and then a super of sections is put on. Here we have a shaken swarm without the shaking — at least, the only shaking is in shaking the bees out of the upper chamber.

Of course, there are other ways of using this hive, which will readily occur to the experienced; but this particular method is suited to hot climates. Where extracted honey only is wanted in hot countries, the chambers should be always added *from below*, to prevent congestion of the brood-chamber. For out-apiaries such a hive is very suitable, since shaken swarms can be made with the greatest ease without risk or too much trouble. The whole theory of management is simply this—to work up the colony to a high pitch in two chambers; then when the honey comes on in full blast, remove one chamber and put the section-super in place. *This stops swarming* very effectually ; and, as a consequence, very plump well-filled sections.

For a poor locality, only two chambers are required; and I will throw out the hint that dequeening, and contraction of the brood-chamber, are quite unnecessary with this hive. The *bete noire* of a comb-honey apiarist is the habit the bees have of storing honey in the brood-chamber. The shallow hive holds this in check. Where only two chambers are used, there will be a fair amount of swarming; but where three are used, the apiarist holds the whip hand.

There are several points to be borne in mind. One is this: That one chamber must be large enough to accommodate a fair-sized colony—say the same capacity as the eight or ten frame, which requires from 12 to 14 shallow frames spaced 1¼ inches apart; otherwise there is too much work.

There are also other considerations. For example, it is easy enough to make such a hive of half-inch stuff, which effects quite a saving, both in weight and first cost. I have also gone a step further, with the idea of having all parts alike, by doing away with all slats, holders, and separators, the *sole* difference between the comb-honey compartment and the extracted being that the one contains frames while the other contains sections.

I do not know that every one will grasp the significance of this; but a glance at the latest A. I. Root catalog will show the multiplicity of arrangements for accommodating bees.

Another thing is the reduction in cost and weight. One of my supers costs *less* than the ordinary one, and yet holds twice as much. The work also is much reduced. The tendency of the present time is to conduct bee-keeping on a much larger scale than formerly, and to reduce the price of honey to the consumer. I am well aware that good results can be secured by using our present hives ; but we can progress ; and in the production of comb honey, as it is done at present, there is too much work and expense. The fussing with contraction, dequeening, baits, separators, cleaning slats, etc., consumes too much of the profit; and rather than do it the Texas people have gone back to bulk honey.

There is also to be considered the enhanced price of hive material, with no corresponding increase in the price of comb honey. I am not "talking through my hat" when I say these savings can be effected, having proved the pudding by eating. Neither is there any thing very revolutionary about it. It is simply improving existing arrangements.

I have gone over this ground to some extent before, but not so fully, and it is matter that will bear repetition. One critic said that the queen lurked between the bottom-bar of the shallow frame and the comb. Such a criticism is worthless, for the reason that all combs, whether shallow or deep, should be securely attached to the bottom-bar. For one thing, space is too precious in a brood-chamber to waste it in that way. Another is the loss of strength; and in the case of a shallow frame, wiring is unnecessary *if the comb is attached to the bottom-bar.*

Another important point, and one not often appreciated, is this : With a comb built securely to the bottom-bar, the bees can be shaken off from it with one vigorous shake. But just try it with a comb not so fastened, and it will take five or six shakes to do as well. In finding a queen the same time is lost looking for her. There is no place for her to hide on a well-built comb. The man who does not fasten his combs to the bottom-bar also requires one more frame in his brood-chambers.

Another criticism made was that starters being used the bees would lodge pollen in the sections, etc. But why use starters at all? Starters in brood-frames are obnoxious to me, and personally I don't want an inch of drone comb in any brood-chamber; and the most up-to-date and most successful bee-masters in the world do the same, I think.

One of the most important *secrets* in the production of comb honey is to have no drone comb in the brood-chamber, so that, when sections are put out, the bees rush up intending to construct drone comb. That is why some folks succeed so well and others don't. They use to the utmost valuable inventions of this sort. In a particularly difficult locality I should use worker foundation in the brood-chamber, and drone foundation in the comb-honey super. And even in very good localities it is a good plan to put drone foundation in all sections next to the sides of the super. This reduces the number of unfinished sections; it also reduces the business of moving sections from the outside to the center, and *vice versa*. In other words, it reduces the number of manipulations. It is by such plans as these the apiarist is able to care for a very large apiary.

Screws on the sides for compression are also very good things, reducing work considerably, both in the manipulation of frames and in the cleaning of sections. They add considerably to the cost of a hive, more particularly if they are made of iron. If screws are used, springs are also requisite ; but they are a great comfort where any kind of closed or half-closed frames are in use.

Propolis has no terrors for a man who uses pressure to bring the frame close together. With such a frame as the Hoffman, screws secure accurate spacing, even in the presence of large amounts of propolis; but, what is more important, the frames can be so constructed as to make the hive practically a double-walled affair, and this is a considerable gain.

Some years ago Mr. A. I. Root and I freely discussed this matter of reducing the cost of hives by simplifying the construction of them, and we both agreed that it could be done. In fact, some twenty years ago he essayed to make some hives on this plan, and he freely illustrated his idea in Gleanings. So you see the idea is nothing new.

[Some eighteen or nineteen years ago this question was discussed *pro* and *con* in the bee-journals, and a good many of the arguments that were then advanced are now put forward by you.

There is no denying it, there are some very decided advantages in the use of shallow brood-chambers; and father Langstroth, after his visit to Mr. Heddon (the chief advocate of this kind of hive at the time), came back very enthusiastic, prepared to admit that the principle of a divisible brood-chamber was one that would receive more favor in the future than it was receiving at that time. If we could get at the facts, we should probably be surprised at the number who are to-day using divisible hives in some form or other. As it is, it is only occasionally that one will mention the fact that he is using it.

You do not give details of the kind of frame you would use, although you imply, when you refer to compression by means of thumbscrews, that you would use closed-end frames.

You favor a hive 6⅔ inches deep. If the depth of the brood-chamber is such as will take the regular standard sections on the market, as well as brood frames, then it could not be deeper than 5¾. A section 5 inches deep is about as deep as we can go without making it large and ill proportioned. Experience shows that it is not practical to make a box that holds more than a pound of honey; and a 2-lb. section is out of the question. In the matter of the size that the section may be to the weight, 4×5 is about as large as we dare go. A 5×6 section, for example, if holding a pound, would be too thin: if it held over a pound it would be too heavy.

You originally favored a brood-chamber that would take a section 5 inches deep. You now recommend a 6⅔-inch; and while that would not be objectionable for a brood-chamber, it would be too deep for a super. Perhaps you have abandoned the idea of having the super and brood-chamber one and the same depth.

Mr. Danzenbaker, in adopting his shallow hive, made it 7½ inches deep, with a super 5¾, as he concluded it was not practicable to make the super also answer for a brood-chamber. He tried that once, and abandoned it. He also tried making hives of ½ and ⅜ lumber, and abandoned that also. Considering how lumber shrinks and checks, I do not believe it is practicable to make a hive of much thinner lumber than ⅞. A half-inch thickness is out of the question, for one has to pay a great deal more proportionally for this thickness than if he takes a standard thickness of boards. One-inch lumber will make two ⅜ boards planed on both sides; but you can not make a half-inch planed board out of an inch board without planing down and wasting a great deal, or without slabbing off a board too thin for other uses.—Ed.]

ANOTHER BALLED QUEEN THAT WAS STUNG IN HER BODY.

BY MARTIN L. NEWMAN.

I have read in Gleanings a number of articles on the question as to whether or not bees sting a queen when they ball her. To-day while I was hunting for a queen I had one balled. The result was a dead queen (or nearly so). I inclose her in tin and forward her to you for inspection. I think that you will find the sting in her throat. She is a young queen, and had filled only three or four inches square with eggs on each side of one frame. I removed the old hive from the stand, placed it on a box, having already prepared for the job by placing an empty hive with entrance-guard near at hand. I began by removing the cover, then the follower, then a frame, and shaking the bees in front of the hive with guard on. I had so removed all the frames, and given the hive-body a shake also, but did not see the queen. As I had seen the eggs I knew she was present somewhere, so I turned to get the bottom-board. When I discovered the ball I reached for the smoker, gave them a few whiffs, but they were determined on mischief. I never saw bees apparently so mad. Each one seemed bent on murder. When I did succeed in rescuing her she was almost dead, and I saw what I took to be the sting of a bee in her throat, so I thought she would be a good subject for you to examine. I took her to the house immediately, and wrapped her up (though not entirely lifeless). She deposited seven eggs in my hand and three on the desk before I folded her up.

Woodside, Cal.

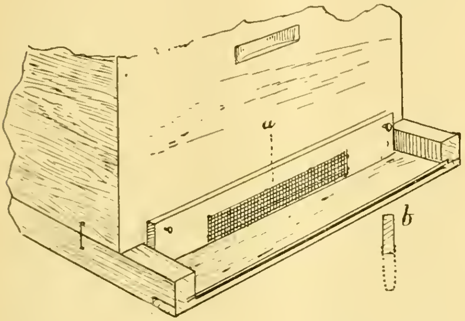
[This is another of the several reports we have had that a balled queen is often stung to death, notwithstanding our good Dr. Miller says that such queens are not stung in the ball. As our correspondent says, the queen sent for my inspection has the sting inserted clear up to the poison-bag, on the under side of the thorax, near the head. She appears to have "got it in the neck."—Ed.]

PREPARING BEES FOR MOVING.

Entrance-Screens.

BY WILMON NEWELL.

Mr. Root:—I notice with interest your suggestions on page 430 for rapidly and conveniently preparing bees for moving. It seems to me that one thing more should be added to that outfit. Instead of tacking wire screen directly over the entrances, we have used for some time a device made as follows: A piece of 1-inch pine is cut about 4 inches wide, and long enough to fit snugly between the projecting cleats of the bottom-board. If the bottom-board is of the old style, without projecting cleats, then the 1-inch piece is cut exactly as long as the hive is wide. In this piece a notch is now cut, about 1½ inches deep by 12 in length, and over it is tacked a piece of wire cloth in such a shape as to fold over the open side of the notch. This device is used for closing the hives, by merely inserting it and driving a couple of 8*d* nails through it into the hive-body. Its appearance is shown in the rough sketch enclosed. A cross-section of the device is shown in lower right-hand corner — cross-section taken at the point marked *a*. When ready to release the bees, a screwdriver (the same one that removes your crate-staples) is thrust under the device, given a turn and a pry, and the thing is off. It can be used repeatedly, saves many minutes of time, and there are no tacks to pull out of the hive, nor sharp ends of wire to stick your fingers.



I am much interested in your comments on smokers in the same issue (May 15). I am strictly in favor of a large hot-blast smoker. If properly managed, the smoke can be kept cool, and sufficient fuel is contained in the large smoker to last for some time.

We use as fuel very dry rotten wood; and when the smoker is filled we place over the rotten wood a small piece of burlap wrung out of water. This wet burlap cools the smoke, insures a heavy volume, prevents the wood from blazing, and prevents the escape of sparks when it is necessary to use the smoker rapidly and continuously.

It is also convenient at times to know how to light a smoker in a strong wind. To do this we lay a handful of excelsior, or a piece of thin paper (such as comes with foundation), on the ground, and cover it with a piece of burlap about six inches square. A match is now lighted, and thrust into the paper or excelsior, which ignites at once; and the harder the wind, the harder it burns, igniting the burlap. The burning burlap is now picked up on a stick or screwdriver, and dropped into the smoker, and the wood or other fuel placed on top of it.

I can hardly agree with your plan of holding the smoker with thumb next to the barrel. It works first rate when there is but little wind; but when our Texas breezes get to moving, you have to hold the smoker with *both* hands and push on it in the bargain. At times the wind blows hard enough to blow the bees from the combs when the latter are taken from the hive, and then it is necessary to get the smoke down *between* the frames, as well as over the tops of them. Nor will it do to wait for the wind to go down, for it sometimes blows a week at a stretch, without intermission. I have found no way to handle the smoker satisfactorily except with fingers next to the barrel.

WILMON NEWELL.

College Station, Texas, June 1.

[We have for years used entrance-screens exactly as you describe; but our artist failed to show them in the illustrations for the simple reason that we did not explain to him their general form and structure.

Excelsior fuel does very well, but a combination of dry rotten wood and excelsior is more satisfactory. Dry hard wood, sound maple, stovewood cut into short lengths, is very good; but the smoke is less pungent than that from rotten wood or some material more spongy.

Every one has his own way of handling smokers. I grant that for many purposes one finds it necessary to use the fingers next to the fire-cup. He has a little more powerful leverage over the bellows when handling the smoker in that way.—ED.]

STARTERS OR FULL SHEETS.

A Quicker Method of Clipping; Loss of Bees from Poisoning.

BY GEORGE W. STRANGWAY.

When I made the trial with full sheets, as mentioned on page 387, the wires were run perpendicularly in the frames. I think Dr. Miller is somewhat extreme in what he says on page 424: "But hundreds of us have made many trials on a large scale, without any failure." What has the doctor to say with regard to Mr. Doolittle's chat, page 426? But, really, wouldn't that worry if you did accordingly?

Yes, after all I believe Dr. M. and E. R. are as near right as need be with regard to full sheets. I believe a person starting with the full intention of making a profession of bee-keeping should use the wired frames and full sheets. But for the haphazard bee keeper, the less he spends in the start, the less he will lose in the end; for there are only certain ones that seem to have the tact for bee-keeping. It is just the same with any other calling.

I wish to say a few words with regard to clipping queens' wings. One day in the apple-blossom season of the present year I started with the object of clipping the wings of anywhere under 50 queens. I commenced by catching the queen up by the wings with one hand, and then passing her to the other, or the left; then with the right hand free I caught up the scissors and off would go her wing. But between having to manage the frame with the bees adhering, and the scissors and the queen, I found it difficult, for I didn't always get things to come just right, and, consequently, had the experience of seeing one of the queens twist her leg off; but she is still doing good service.

Now all of a sudden the thought struck me to put my finger or thumb of the left hand on her feet as she was moving slowly around; so when I would find the frame with her on I would place one end on the remaining ones that were in the hive, lean the other end against my body, place my thumb or finger on her feet, which are spread out as she walks about, and with the right hand free she is clipped instantly. I found this plan complete, and went through the remaining number in short order without hurting any.

I have lost a great number of bees this season by poisoning. I believe they were reduced by fully a third. I attribute it to poisoning gooseberries, currant-bushes, and small plum-trees, as they seemed to disappear just at that time. Some colonies were terribly reduced — in fact, left useless for the season. I might have passed this over but for your article in the June 15th issue.

Elora, Ont., Can., June 22.

[Your method of clipping will, no doubt, work satisfactorily for the veteran who is not at all nervous; but it strikes me I should prefer to take a little more time. and work in a way I am sure would not maim the queen or cause a flurry among the bees by holding the queen down and causing her to "squeal," perhaps, while being so held. The method I described in our issue for May 15, page 429, would require but a little more time.

When the roll is called of the losses from poisoning during spraying time, we shall find that thousands and thousands of bees — yes, millions of them — have been destroyed, all because of the ignorance or indifference, or both, of the fruit-grower. For the purpose of gathering statistics and facts, I wish our subscribers who have lost bees during spraying time would give us a brief statement of the facts so that we can publish them in pamphlet form, and thus prove to the fruit-growers that spraying during the *wrong* time does actually kill our property — the bees. The majority of neighbors would be inclined to be considerate of the rights of their neighbor bee-keepers if they can only have incontrovertible facts. Now, then, let us have the "evidence," even if the statements come in by the hundreds. I have already collected a few, and these will be placed with the rest, ready for distribution next season, or this season as soon as material is gathered.—Ed.]

QUEEN-MATING ATTEMPTED IN A SMALL CAGE.

Some Experiments That Just Failed of Success.

BY FRED BECHLY.

On page 94 is an article on fertilizing queens in confinement, and at the close of the article you make the remark that you would turn your brother Huber loose in the apiary to make some experiments next season. Allow me to give my experience I have had in that direction, and you may thereby overcome some of the failures I have had.

I think it was in 1887 that Mr. McLean made those experiments, and the following season I made some similar ones, but on a smaller scale. I built a tent four feet square and four feet high. It was made in six pieces—simply six frames, five covered with muslin, and the top covered with wire netting. This tent was fastened together with hooks when wanted, and taken down in the evening when the drones quit flying.

Three sides, outside the tent, were occupied by nuclei, placed so that the tent would just fit snug against them. The nuclei were made of ten-frame L. hives, with two frames to each, one with brood and one with honey, and a division-board next to the combs. The rest of the hive was left empty, the entrance closed with queen excluder. The bees were put on the side next to the tent. A 1¼-inch auger-hole was made in the hive near the bottom, and closed with a cork until wanted; the tent was fastened against those hives with a button, and the cork removed when wanted. I gave those bees plenty of drones from other hives not reared in the nuclei.

In the afternoon I would go and watch them. The drones and some workers would come out, and fly with all their force against the wire netting, and fall down stunned on the bottom of the tent, and fly up and repeat the same thing over again until I spread a cloth over the top, when they would circle around the tent quite freely. I did not see any hesitation about the queens coming out. I saw one queen come out four times in one afternoon. The first time she came out she took the location, the same as they do outside. I saw the queen and the drone come together frequently, but no mating took place.

About three days later one of the queens was laying, and I felt like shouting. On the fourth day, late in the afternoon, I found one of the queens outside, trying to get through the excluder back into the hive, so I had to come to the conclusion that the laying queen also had forced her way through the excluder and become fertilized in the usual way. But I believe if Mr. McLean had used muslin instead of netting he might have been more successful in a larger tent; and with drones reared in a hive, and allowed to fly only in a tent, he might have done still better. In making my experiments I would use only the largest queens, so as to be sure they could not go through the excluder.

Muslin will give all the light needed; and if the entrance of the nuclei is shaded a little I think there would be no trouble in getting the queens to fly in a tent. I don't take much stock in fertilizing queens in bottles. FRED BECHLY.

Searsboro, Ia.

[There are possibilities in using a small cage: and, as I have before stated, as soon as my brother is at liberty the matter will be given a thorough test.

Like yourself, I do not take very much stock in the bottle method of fertilizing queens.—ED.]

WIRING FRAMES.

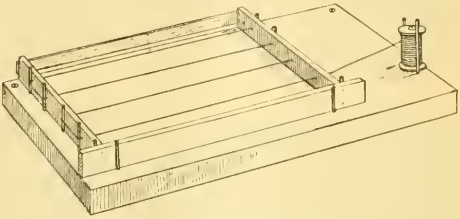
BY FR. GREINER.

It almost seems like an imposition upon the GLEANINGS family to dish up the subject of wiring frames again. But when I see so much stress laid on tension in the form of staples and zig-zag nails, and this approved by the editor in his footnote, I am fully convinced that the machines our friends have presented in GLEANINGS are faulty; that they do not work right for rapid manipulations and for the comfort of the operator.

There is no need of any tension, but it is an actual detriment, a hindrance in drawing the wire through the frame. I imagine that the object of this said tension is for the purpose of keeping the wire from uncoiling, to keep coils from slipping off the spool and getting kinked and tangled up, etc., which it will do if the end of the wire has its liberty, and no provisions are made to prevent it. But we need no tension for that. The simplest way to obviate all this trouble is to arrange the spool as shown in the illustration. A screw, ¾ inch longer than the spool, holds the latter in its place, and allows it to revolve freely *without any tension* save the little that is caused by the natural friction of the spool whirling on the board and rubbing against the screw. A couple of headless 10*d* wire nails are driven in the board, one on each side, close to the spool, but not to hug it. These prevent all loosening or uncoiling of the wire, which can be cut off two inches from the spool, and the end will remain right there ready to be drawn out again.

The frame, if threaded with four wires, is held by eleven pins. These are also headless 10*d* wire nails, about two inches long, and the cut end somewhat rounded off. They are driven into the board to fit exactly the outside of the frame; and when the latter is placed in position it is held practically immovable, better than a vise could do, for all the pulling of the wire, one way or the other, will not draw it out of shape.

But some of the pins (six in this case) have another mission, which I consider by far the most essential point (my invention). It will be noticed that each loop has on the inside, close to each hole in the end-bar, one of these pins. This prevents the wire from cutting into the wood when threading the frame, and allows it to be drawn back and forth with very little effort. The resistance or friction of the wire in passing over the pins is so slight that, when the frame is all threaded, the wire can be drawn out again by simply turning the spool backward with the hand.



The wiring-board is operated in horizontal position, fastened to the bench by a couple of small screws or nails in the upper corners.

The tightening of the wire is an operation by itself; but as I have already taken up too much space I will not discuss it here. Until this part of the work (the tightening) is done, the terminus is drawn over the end-bar, as shown at the right upper corner, to keep it from slipping back. The other end is fastened in the same way, after it is cut off.

[I did not know that I had approved the various methods for wiring any more than simply to place them before our readers, and let then stand on their own merits. Some methods were shown that we do not use, and which we do not consider practicable.

You have left out the missing link in that you do not state how much you loosen or tighten the wires, although we infer that, after lifting the frame off the board, you take out the slack occasioned by the nails and fasten the wire. Our own experience has shown that, in the case of horizontal wiring the strands must not be drawn too tight. Wire drawn tight enough to sound like a fiddle-string will cause buckling of the foundation. Just how tight to draw the wires is hard to explain on a printed page; but it should be so there will be no looseness, and so that the comb will be held firmly when built off from foundation. There is apt to be a very slight sag to foundation—not enough, however, to cause an elongation of cells. When the wire is drawn just right it will accommodate the slight sag and leave the resultant comb like a good clean flat board. The plan we use for wiring is essentially the same as that used by Mr. Coggshall as illustrated on page 485.—Ed.]

THAT BIG CROP OF HONEY.

Working Double-decker Colonies; the Effect of Wide Entrances.

BY GEORGE B. HOWE.

I promised you that I would tell you how I produced that four tons of honey from 70 colonies, spring count. In the first place, I had all young queens. I do not believe in keeping queens after they are two years old, for my experience has been that it does not pay. My method is to keep the bees from swarming if I can. I believe in double-deckers. I find that it works the best to add the extra brood-chamber when they need it. When the queen gets her hive full of eggs and brood, and needs more room, I do not wait for them to get the swarming fever, but raise up the hive and put another under it with drawn combs. I find that drawn combs are far ahead of foundation to keep them from swarming. I do not claim that they will not swarm, nor are all queens good enough for double-deckers, so an apiarist would be foolish to try to use a double-decker with a poor queen. With Dr. Miller, I am still looking for a strain of non-swarming bees. To produce comb honey we must have strong colonies, and keep them so without a desire to swarm. Proper ventilation goes a long way toward this.

Last spring and early summer we had cold rainy weather. I used to go down in the yard and close the entrance according to the strength of the colony, on cold nights. Sometimes it would keep so cold that I would not open them up for two or three days. I have found that those with large entrances, especially on cold nights, did not breed as rapidly. When they are making comb honey in very hot weather they need a good deal of ventilation from the *bottom*. I have tried raising the hive in the heat of the day, and then lowering it toward evening as it begins to get cooler. I use shade-boards, and I never raise the cover to ventilate unless it is a powerful colony, as they can not cap when there is a draft through the hive. If you do raise the cover, always lower it at night. Work with the bees, for they always want their ventilation at the bottom. Give them plenty of section room. As soon as they get one super well started I raise it up and give them another. I have found that they work all right in three supers; but when you get up to four or five they cap slowly in the upper supers.

APIARY OF GEO. W. HOWE.

I sent you a photo of my yard last night. In order to get the most of the hives in I was obliged to get so far away that it brought some berry-bushes and grass between the camera and hives. I did not get a very good picture, and will try again some time.

Black River, N. Y.

[The readers who have followed me for a number of years back can not help failing to note that I have been an advocate of double decker colonies. They are less inclined to swarm; and if the honey-flow is short or moderate, they are the only colonies in the yard that will make much of a showing. As the years go on, I note there are more and more who see the importance of powerful colonies for the production of honey. They are easier to take care of, because they are less inclined to swarm; and when the honey-flow does come they are ready.—Ed.]

Heads of Grain from different fields

AN IDEAL BEE LOCALITY IN AUSTRALIA.

I believe this southwest part of Western Australia would break the world's record for honey, and I should like to see one of your progressive bee-keepers give it a trial. The only trouble would be that they would break the market if they got one or two thousand hives in full swing. At my place here the bees have had abundant nectar for the last two months. I am near the coast, on poor sandy soil, and there are trees and scrub in blossom nearly the whole year, and the winter is so mild that the bees are kept in only by rain, and work practically the whole year. I started keeping a proper record of honey last April (12 months). At that date I had 11 colonies, Italian and hybrid, and increased to 21 at swarming (September and October), besides losing two or three good swarms, and I find the bees have made over two tons of honey in one year. Considering I am a "new chum" at the work, and am situated within 200 yards of an estuary two miles wide, which means only a half-circle for the bees, the record is very good. I feel sure a practical man could have secured fully another ton, as I left the combs to be sealed right to the bottom-bars; and although I had the hives three high, they were crowded in the brood-chamber, and I had a lot of bother with swarming. Counting the 21 hives, it makes an average of 213 lbs. per colony; but is it not the custom to average the spring count? If so, the yield would take beating per colony. Two or three of the colonies made very little, as I lost the swarm, and had after-swarms, and many of the troubles that beginners have.

F. Joseph B. Clifton.

Upton House, Australia.

A PREPARATION FOR HIVE-COVERS IN DRY CLIMATES.

I should like to call your attention to an improvement I have on a hive-cover. I started with the cover known as the "Brodbeck," made out of "shakes" (California), with ¾-inch strips between the two layers of shakes. So far, so good; but how to get rid of the cracks or joints between the six-inch shakes was a problem. I tried rubber-paper, tarred paper, building paper, none giving satisfaction Next I tried canvas with oil paint on top and bottom; but the canvas would not stick on the wood well. I now came across what is called asbestine, a cold-water paint. I put a thick layer of this paint on the wood, and, while it was yet wet, spread over it a thin muslin, patted it down well, and on that another layer of this same paint, closing all pores in the muslin. Now let it dry well; drive tacks around the edges, and then paint it with white-lead oil paint, and the cover is done—the lightest non-warpable cover yet made.

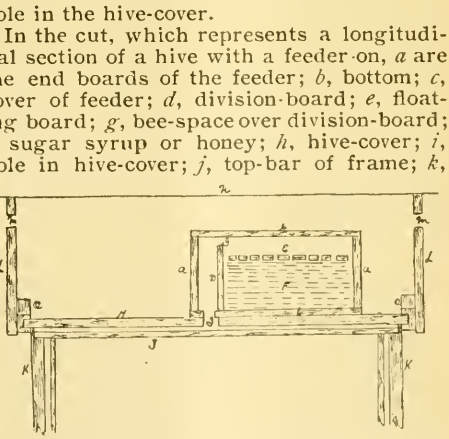
I have had one in use two years. It is as straight now as it was when I made it. I have made since, 150 of this kind, and I will make all my covers that way, as it is cover and shade board at the same time, and just suitable for our dry climate. If you wish I will show you one when you come to Los Angeles in August. M. R. Kuehne.

Pomona, Cal., July 11.

KOEBLER'S COVER FEEDER.

We have for many years used a feeder in our apiaries in Wisconsin that I think has a few points of superiority over any of the feeders on the market. The feeder is a rectangular box with a division-board near one end, which is a bee-space lower than the end-boards. In the smaller division an inch hole is in the bottom of the feeder, and in the larger division the honey or sugar syrup is put, on which is a floating board perforated with ⅛-inch holes. This floating board is small enough so that it will readily sink as the fluid goes down. The feeder is so set on the hive-cover that the hole in the bottom of the feeder is on the hole in the hive-cover.

In the cut, which represents a longitudinal section of a hive with a feeder on, *a* are the end boards of the feeder; *b*, bottom; *c*, cover of feeder; *d*, division-board; *e*, floating board; *g*, bee-space over division-board; *f*, sugar syrup or honey; *h*, hive-cover; *i*, hole in hive-cover; *j*, top-bar of frame; *k*, end-boards of hive; *l*, gable ends of weather cover; *m*, 1½-inch ventilator holes; *n*, galvanized-iron roof; *o*, strips of wood on gable ends to lay on cover.



Now for its advantages. First, you can use it when it is too cold to use another; the bees will work in this feeder when they will not go in the entrance feeder; and if you use a feeder where you will have to use a super, as the Dr. Miller feeder, you are very liable to chill the brood; and even if that will not be the case your bees will have a larger space to heat up, besides the heat that is lost in opening the hive, so they will expend energy which is more valuable for other purposes at that time of the year.

Second, ease and rapidity of feeding. It is as easy to feed with it as with an entrance feeder, and much more easy to wash, while it is much easier to feed with it than when you must use a super to feed. We have the feeders in quart, half-gallon, and gallon sizes, so we can give a colony enough in one feed. The bees will empty a feeder out in about 24 hours. This makes feeding very rapid work.

Third, the feed is voluntary; and if the feeder is well made it is impossible for bees or hive to get soiled with honey.

Fourth, if a weather-cover is used it will not attract robbers as some feeders do.

Now, some of you will say, "But I would not have a hole in the cover." Well, let me say that I would want the holes in the covers, and a good cork in each, even if there were no such a thing as feeders. If you have a two-inch hole with a good cork in it, long enough so that you can take hold with ease, you will find it handy to introduce queens from shipping-cages. All you have to do is to remove the wire so that a part of the candy is free; lay the cage on the hole with the candy side down, and set a bowl over the cage, and you will find the hole very handy. If you want to look into the hive without disturbing the colony, through that hole you can see if a super is full, etc.

In some climates it would be advisable to use a weather-cover over the other cover. Our weather-covers are about four inches over the cover on the sides, and six in the middle. For the cover we use galvanized iron. We formerly used roofing tin; but in the long run galvanized iron is cheaper. In each gable we have a 1½-inch ventilator-hole, as marked in cut. I think that, if such weather-covers were more used, it would do away with the cover trouble that we hear so much about. HUGO KOEHLER.

Marshallville, O., Apr. 16.

COTTONWOOD FOR SECTIONS.

In reply to yours of a recent date, I will say that the wahoo here grow to about 3 ft. in diameter, but usually run from about 12 to 30 inches. They grow in nearly all swamps here, and also on the hills to some extent, from one to as many in some places as six or eight to the acre in woodland. There are a few of them that have a black heart—average about one to six trees; but most of them are all sap, either white or of a pinkish shade. They continue to bloom about June 20, and last for about two weeks, and have always produced some honey except during rainy seasons, when the bees had no opportunity to gather the honey. There may be 400 or 500 trees within a mile of my house. A sample of bloom is sent. I noticed some pieces of timber that were split out last October and November, but they seem to be white yet after taking off the outside. My opinion was that the wood would remain white if cut any time when sap was down, or any time after leaves shed.

Have you ever tried cottonwood for sections? I should like to know for certain whether timber cut here any time will stain or not in dry weather. W. C. NAFTEE.

Naftee, Ala., May 27, 1903.

[Cottonwood *might* answer, but it would cost here about the same price as basswood, and would not be as tough.—ED.]

CARPET GRASS—THE USE OF A SPRAY-PUMP IN THE APIARY.

Noting the interest that was manifested in the carpet grass of California, we secured, last January, from J. H. Erich, of Nicolaus, Cal., roots of this plant, and set them out here. They grew readily; but now that it is in bloom, we find it is exactly identical with the *Lippia nodiflora*, which occurs along every sandy bank and water-course in Central Texas. Its growth can hardly be designated as luxuriant; and as to the blossoms, the bees will not go near them when nectar is available from any other source. As a honey-producer in this locality it is absolutely worthless. Even in the dry summer of 1902, when nothing else was in bloom, only an occasional bee could be found visiting the lippia-blooms, and no increase in the amount of honey in the hives could be detected whatever.

A small spray-pump is one of the most convenient appliances we have found for use about the apiary. The one we have used for several months is a small one with a capacity of about three gallons. It is run by compressed air. In the central part of the reservoir is an air-pump which forces air into the water-chamber, and the resulting pressure will keep up a good spray for several minutes. The entire thing is light and compact, and can be readily picked up and carried wherever needed. As a "settler" for swarms it is a dandy, as it will throw either a fine or coarse spray as desired; or by removing the nozzle it will throw a small stream to a height of twenty feet. It is also just the thing to quiet robbers. A strong spray directed on the attacked colony knocks the robbers right and left; and by the time they get dried off again they have lost all notion of robbing. A few repetitions of the treatment at intervals of ten minutes will stop the most obstinate case of robbing, especially if a few drops of carbolic acid be placed in the water.

For filling combs with syrup for feeding, the sprayer is filled with the syrup, the empty comb set up over a pail or pan, and the syrup thrown on to it with a fine spray. The small drops readily enter the cells, allowing the air to escape, and the result is a neatly filled comb with very little muss.

For washing the inside of the extractor, uncapping-can, or the inside of honey-cans, we take off the nozzle so that the sprayer will throw a small strong stream, stick the pipe into the article to be washed, and thus thoroughly rinse every crack and corner. The same little machine can, of course, be used as a fire-extinguisher in emergencies; and the man with a well-equipped honey-house would be unwise not to make some provision for such accidents.

WILMON NEWELL.

College Station, Texas, June 1.

[Some years ago we used a spray-pump for throwing water on swarms while in the air, and it was very effective in driving them from one point to another and in forcing them to cluster. On several occesions when swarms were disposed to "light out" to the woods we succeeded in heading them off by spraying those in front. We found we could drive them almost like a flock of sheep. After wetting them down we increased their avoirdupois and interfered with their flying, with the result that they would very soon cluster on some convenient tree or bush.

We never tried spraying to stop robbing, but I am inclined to think it might be used effectively.—ED.]

PREPARING SHEETS OF WAX FOR THE FOUNDATION-MILL; AN EXCELLENT PLAN.

Formerly, in making foundation I always dreaded the job of dipping the sheets. It was slow, and not satisfactory. The most trouble was to get them of the same thickness, and most of them would cause trouble by turning sidewise in the mill. Now I do differently; and if it takes more "elbow grease" it is a great satisfaction to roll out foundation by the yard without any hitch. I proceed thus: I strain my melted wax in a large pan or box, with plenty of water in the bottom, to the thickness of ¼ to ½ inch. When cold I cut it in strips as wide as the foundation desired. These sheets of wax will be of an even thickness; and when I am ready to run them through the mill I set them in the sun or warm water till they are pliable and soft. I keep the rollers cool with plenty of cold water, and have no more trouble. A. LEYVRAZ.

Francis, Fla., June 8.

[Your plan of preparing the sheets will give more even thickness of wax, but the process will be much slower.—ED.]

SWARMS FOR SHALLOW BROOD-CHAMBER.

I notice E. N. Woodward's article, p. 484, and your comment. Let me give you a leaf from my own experience. My father kept bees, using the old fashioned box gum. With the first L. frame hives he used he had Woodward's experience exactly. His bees wanted no new-fangled contrivance. Those old gums are a thing of the past; but I have been experimenting with the Danzenbaker hive, and, behold, my bees are going through the same antics. A swarm that will have nothing to do with a Danzenbaker hive will settle down in a L. frame as contentedly as you please. Doesn't it look as though the trouble is simply a different style of hive from what the bees have been accustomed to? I shall continue hiving my best swarms in the Danzenbaker hives, for I am having the best success for honey with them after they get settled. It takes a little more care, that is all. CHAS. L. SIMMONS.

Strong City, Kan., June 12.

[I still believe that this apparent preference on the part of swarms is only accidental. We have been and are now hiving shaken swarms in deep and shallow frames, and can not see that the bees dislike one more than the other. Another season may afford you an experience directly opposite. In a word, the *shape* of the hive has little or no effect on swarms. So far as the bees are concerned they would as soon have one as the other. But the shape of the hive has every thing to do in the matter of *convenience* of the operator, and a good deal to do with the marketability of the honey produced.—ED.]

IS TARRED PAPER OBJECTIONABLE FOR USE IN A HONEY-ROOM?

I have prepared a small room to keep my honey in, and in order to keep out the ants and bees I have lined it with building-paper. Now I am afraid the smell will give the honey a bad taste. What do you think about it? Is there something to kill the smell of the paper used? If gas tar is used, will the smell hurt the honey?

Cockeysville, Md. GEO. W. CANOLES.

[The slight odor from tarred paper we do not think would in any wise hurt the flavor of comb honey. One of our honey-rooms has been lined with this material for years, and we have never had any trouble whatever.—ED.]

EXCELSIOR SMOKER FUEL, AND HOW TO PREPARE.

Referring to my last letter and to your answer of the 16th, I would say that you would find smokers easier lighted and handled by sending out directions for lighting about as follows:

Common packing excelsior, easily found back of nearly every village store, makes one of the best fuels for smokers. Take a small roll about the size of a walnut, then light it. Then drop it into the smoker, give it a few puffs, then roll up more excelsior into balls about as big as will cram into the smoker, giving it an occasional puff, and this fuel will last for hours, especially in the larger smokers.

The excelsior is quite easily obtained, is splendid, if for no other purpose than simply starting the fire, after which any fuel suitable to the location or convenience of the user can be used. B. C. HALL.

Elmwood, Ill.

WINTERING IN THE DANZENBAKER SHALLOW HIVE IN NORTHERN MICHIGAN.

I wish A. I. R. would tell us how his two colonies of bees in the Danz. hive wintered in Bingham. I have always considered the Danz. hive too shallow to winter successfully in this latitude, especially on summer stands. A. A. HARDY.

Boon, Mich.

[Friend H., if you want my personal opinion in regard to the matter, I would say, stick to the L. frame. Since I began bee-keeping, every little while somebody gives his reasons for thinking the L. frame is not the best shape or size, and more or less follow him; but in due course of time the new kind is dropped, and we get back to the standard L. There are not only more bees in the world on this size of frame than all other sizes together, but I am not sure but there are *ten times* as many. Perhaps I am not posted, and up to the times; but I very much doubt whether there is advantage enough in a shallower frame to pay to use another than the L. In answer to your question, one of my colonies wintered perfectly out of doors on its summer stand, with no protection except filling the super (where the honey was stored last year) with forest-leaves. The other one was wintered in the potato-cellar I described on p. 559, June 15. They both wintered well. I have not been able to notice any difference. As the cellar under the barn was pretty cold, perhaps the consumption of honey was about the same as in the hive that remained outdoors.—A. I. R.]

IS IT POISONOUS HONEY? IF SO, WHAT?

I have about 80 colonies that are making us a great deal of fine honey. I began selling it here, and the people commenced to get sick and send for the doctor. They claim the honey was poison; in fact, it made my wife sick, and I began to think the doctor would call at my house. Of course we don't eat any more, and I do not want to sell it to my neighbors, and I am afraid to ship it. I want you, Bro. Root, and the readers of GLEANINGS, to tell me what to do with my honey. You know I hate to lose all of it. L. L. KNIGHT.

Glennville, Ga.

[From what you write it would seem as if the bees gathered nectar from some poisonous plant. The only ones of this country that are known to produce poisonous honey are the mountain laurel of Virginia and the yellow jessamine of Georgia. I should presume that this latter is growing in your vicinity, and is causing sickness among your friends and patrons such as you describe. The symptoms tally very closely with those that have been previously reported, and I would, therefore, suggest that you ascertain whether there is a yellow bell-shaped flower by the name of yellow jessamine growing in your vicinity. If so, I think you may rest assured that your trouble is from that source. Any of our subscribers who live in the vicinity who can offer any information are requested to tell us of their experience.—ED.]

MIXED SWARMS.

While we are on the mixed-swarm theme, for the benefit of the brotherhood I may just as well give the way on which I proceed when I have to face such cases. My queens are not clipped. When two or more swarms come out and get mixed I take as many bodies of hives with frames as there are swarms. These hives, piled up on one bottom-board only, are raised in front; the lower, say 2 in., and the others ⅜ inch. A sheet covers the whole in the form of an awning. Then the bundle of swarms is dumped at the lower opening. In about an hour, even less, all the colonies are divided, and each one occupies its own hive. FRANCOIS BENOIT.

Notre Dame-des-Neiges, Canada.

[I should not have supposed that one big swarm made up of several would break up into separate clusters in separate hives as you describe. I can't understand it even now. Perhaps some others of our subscribers have had similar experience, and can explain the reason.—ED.]

A FIVE-YEAR-OLD QUEEN WHOSE BEES HAVE NEVER SWARMED.

In GLEANINGS for Feb. 15, page 159, W. W. Brockunier states he has a colony whose queen is over three years old, and has not swarmed. I have an Italian queen here whose bees have not cast a swarm for five years — on that point I am certain. She is a dark queen, with one wing clipped, and the inside one on the opposite side. I have been for some years, by careful selection, trying to breed bees that would not swarm, and I think I have reached the goal. The last three years I have been breeding from her, and my average has been about one swarm in 12. Her bees are not the handsomest, but are nicely marked; but I put honey-gathering qualities first. Her hive contains plenty of drones each season, as I allow her a certain amount of drone comb, and her bees are wonders at honey-gathering. G. D. PARKER.

Crookwell, N. S. W., Apr. 7.

THE LONG DROUTH OF 1791.

I find a report of Mr. J. D. Bixby, of Guilderland Center, N. Y. He says, "This is forty-five days without rain — the *longest rainless* period since *1791*." I wish to say that I lived in his section, Oak Hill, Greene Co., N. Y., in 1854, and I believe I make no mistake when I say that no rain fell between May and September that summer. I have heard old men say, who lived in that town, that they did not remember such a drouth as that. JOHN McKEON.

Dryden, N. Y., June 10.

[We had such a season here in 1854.—ED.]

NOT A FAIR CROP FOR CENTRAL CALIFORNIA.

I have just returned from a trip of ten days to San Francisco and Northern California, and I find your letter awaiting me which should have had my attention several days ago. This I regret very much, as I am very anxious that it be known that we shall not have a good crop this season. Up to date we are considerably behind in quantity, and it is now so late that it is impossible for Central California and the Northern part of the State to have even a fair crop. There are sections that are doing well, but as a whole not up to average.

Hanford, Cal., July 13. F. E. BROWN.

[As Mr. Brown is business manager for the Central California Bee-keepers' Association, his statement can be considered reliable as well as authoritative.—ED.]

A SMALL BEE-KEEPERS' ASSOCIATION ORGANIZED FOR THE PURPOSE OF CONTROLLING THE SPREAD OF FOUL BROOD.

I enclose a clipping from the Muncy *Democrat* giving an account of the organization of the "Muncy Valley Bee-keepers' Association." This Association has been organized for the purpose of trying to stamp out foul brood in this section, as it is very bad in this part of the State. There are no fees to become a member, and the expenses are met by offerings from members. The Association is only a few weeks old, and has some twenty members.

A committee is appointed to examine each member's bees, and the owner of such bees becomes one of the committee. Each member must allow his bees to be examined, and all colonies found foul-broody must be cured or destroyed. This is the only organization of its kind in the State, that I know of. O. C. FULLER.

Comly, Pa., June 26.

[Your plan is a very good one; but you had better bend your energies toward getting a State foul-brood law that will put the power of the State of Pennsylvania back of you; for the very fellows who ought to join your organization may not, if they have foul brood, and will be the very ones you can not do any thing with unless you can bring the law to bear on them.—ED.]

WAS IT AN UNUSUAL CASE OF SWARMING?

We have had an experience with bees which is somewhat different from any which the books on this subject relate. On Monday, June 15, one of our colonies swarmed, and we caught it and put it into a new hive; but as the queen did not come out, it seems the swarm left the new hive and went back to the old one. The queen in the hive was clipped. Sunday, the 21st, they swarmed again, and the queen was found in front of the hive. She was placed in the new hive, and the swarm was caught and put into the same hive. This was about 11 o'clock in the morning, and about 6 at night the swarm was found to have left the hive, although the queen was still there. We are quite certain that the swarm went back to the old hive. The new hive contained brood-frames with foundation, and, so far as the writer knows, every thing was in good shape to receive them.

Can you explain what the trouble was, and how we should handle this matter? As we feared the queen might die if we left her alone in the new hive, we put her back into the old hive. Is it customary to take any of the brood-frames from the old hive and place them in the new one?

EDW. H. SCHWARTZBURG.

Milwaukee, June 22, 1903.

[I do not see any thing very unusual in this case. If there is any set rule about swarms going out and coming back it has many exceptions. There was nothing unusual about their going out and coming back if the queen's wing was clipped; nor was there any thing out of the ordinary in their leaving the new hive, even when they had their old queen with them. They did not like their new quarters for some reason, and decided to swarm out, expecting the queen to follow, which she could not do, of course. We always consider it advisable to put a swarm, in the height of the swarming season, on a frame of unsealed brood. This, probably, will do more than any thing else to hold bees in their new quarters.—ED.]

UNRIPE HONEY FOR THE MARKET.

A few minutes ago, having a little leisure time, I picked up the issue of July 1st GLEANINGS to look over A. I.'s article under "Our Holmes." I had read the same, including the extract from our friend T. B. Terry, with much interest. Having finished it I was turning back the pages when I noticed "Unripe honey for the confectioner and baker, how it may injure the sale of good honey—a vigorous protest by R. A. Burnett." I had glanced at the table of contents when GLEANINGS came, or soon after, but did not find it there; and (this being our busy season in fruits and vegetables) I had not again taken it up.

What I now wish to say is, I am more than ever in love (if I may use the term) with A. I. and E. R. Root for their courage and sincerity, as shown by putting this letter to which I have referred into their magazine, and endorsing it as they did with the footnote. I thought after it had been sent to you that perhaps I was cruel to put the matter in such terse form, which virtually amounted to a reprimand so far as A. I. was concerned. If he had not been big enough from the soul standpoint to see it in the light it was meant, and not that of a personal thing, but for the good of the world, this might not have been written; therefore my commendation. You published the letter without change of any kind, although "lightning operators" was almost equivalent to naming some of our brothers who had brought disaster upon themselves as well as others who were engaged in the production of extracted honey.

We are creatures of evolution, and it is only the more highly evolved that escape punishment, because they will learn without. When the soul has sufficiently informed itself so that any transgression will result disastrouly, it begins to avoid disappointments; and if we wish to evade them in our daily life in producing or vending we must endeavor to produce the best that we can, and do it in love and kindness.

In the second paragraph of my letter of June 6 I begin the second sentence by saying that "I do not know that I have read any thing in a long time which annoyed me more than the publicity given to that method of obtaining a large quantity of honey." I am not so sure but that the best method of curing ills is to give them great publicity, as attention is thus attracted, and the ills can be more readily discerned; hence the hasty thought of your senior member, committed to print, may after all be productive of more good than harm; for greatest of all of the hindrances to the sale of extracted honey that I have met with in over a quarter of a century has been the unripe article. R. A. Burnett.

Chicago, July 17.

[You do not need to offer any apologies for what you wrote. If we can not endure honest criticism from a large-hearted man like yourself we will quit the bee-journal business. As you say, the probable effect of the articles, yours and A. I. R.'s, will be productive of good.—Ed.]

IS IT POSSIBLE THAT SOME MEMBERS OF THE N. B. K. A. ADULTERATE HONEY?

A great deal is being said about adulterated honey. You say in footnote, page 537, "The N. B. K. A. together with the local State organization is doing much to get laws that will make the adulteration of honey a crime." That may be so, and I guess is all right; but do none of the National adulterate honey?

I bought a lot of honey from a man whom I am satisfied belongs to the National (I have no list), and it was sugar syrup, or some other kind of syrup flavored with cinnamon. When I wrote him that the stuff was here subject to his order, he declared it was "pure honey." I proposed to have it analyzed. If pure I would pay all expenses; if not, he was to pay them. He would not agree to this; but to convince me that it was pure he had me send a sample to —— —— who, I suppose, is another member, a specialist, and he pronounces it pure honey.

From this and other facts I am satisfied that honey is adulterated after it gets into the hands of the speculators. The speculator buys no such stuff as that for "pure honey" and pays pure-honey prices. The speculator, who himself is often a beekeeper, is the man to watch. The man who sells it to the speculator knows he can not put off on him an adulteration.

Alexandria, Tenn. David Wauford.

[If there is a man who is a member of the National who adulterates honey, we do not know who he is. One of the very objects of the Association is to put down adulteration. It would seem truly inconsistent for a member to adulterate honey when he is in fact paying down his good dollars to stop that very kind of business. Referring to the case in point, you say you are "satisfied" that the man in question belongs to the National; but you do not *know* that he does; and in the second place, neither you nor any one else can positively determine whether honey is adulterated or not by the *mere taste*. There are many different flavors of real honey—as many as there are of ordinary confectionery. You imply, if I understand you, that the other member, the specialist who analyzed the honey, either did not know his business or else he was in league with his brother-member the adulterator. I know of only one man in the membership of the National who is competent to analyze honey, and that is W. A. Selser, of Philadelphia. Adulteration has hurt his business as a honey-merchant. He would no more adulterate than he would commit any other crime. If we can not rely on the statement of our chemist, or a member of the National, we are in a bad way. The membership of the Association is made up of a different set of fellows entirely. Your guess-so, think-so evidence would not be entertained in any court for even one minute. Get some real evidence, send another sample of the honey to the U. S. Chemist, Prof. H. W. Wiley, if you can not trust Selser, and we will pay the bill if the honey is adulterated, and help to make it hot for the offending member of the National.—Ed.]

FOREST COCKROACHES AMONG THE BEES.

There is a bug which bothers my bees, and I can not get rid of them. I will send you one to see what I can do to get rid of them. Minerva Marshall.

Nadine, Pa., June 9.

[This was sent to Prof. Benton, of Washington, D. C., who replies:]

The insect belongs to the genus *Phyllodromia*, and is one of the forest cockroaches, which are very common in wooded sections, and come about bee-hives chiefly for the warmth generated by the bees. They like to congregate above the quilts, and particularly to deposit egg masses there and rear their young. I really think they do very little damage. Of course, if they have access to honey—that is, combs not well protected by bees, they may eat some, and probably also feed on dead bees to a certain extent. Frequent removal of the covers, and brushing them away, is about the only remedy, since it is only where hives are not opened for many days or weeks that these insects would collect in great numbers. FRANK BENTON.

Washington, D. C., June 27.

A CASE WHERE FORMALIN GAS DID NOT KILL ALL OF THE MOTH-LARVÆ.

I have used formalin gas according to the directions on page 537, for disinfecting combs infected with foul brood, and find that, in whatever way I use it, it does not kill *all* the moth-larvæ, but some of the newly hatched bees.

I do not use a cupboard, but stack up the hives and paint the cracks up air-tight. I have the generator connected with the hives with a rubber hose about 18 inches long. Would it be possible for any of the gas to escape through the rubber while heated by the gas passing through it? Do you think the combs would be thoroughly disinfected if any moth-larvæ are still alive? I do not think the gas was weak, for I use half a teacupful at a time, and have only four or five hives treated at a time.

Would it not be possible for the formalin gas to destroy only germs, etc., and still leave alive more highly organized forms of life? CLYDE MILLER.

Cranberry, Pa., June 30.

[I should not suppose that your fumigating-box or hive was tight enough to do very thorough work. A gas that would be strong enough to kill the bacilli of foul brood in sealed cells would, I should suppose, be sure to kill any thing like a moth-miller. Better look over your directions more carefully, for I think you will find you did not get your gas strong enough or the box was not tight enough.—ED.]

LENGTH OF TIME A QUEEN CAN LIVE CAGED; HOW TO GET AT THE DIMENSIONS OF STANDARD HIVES.

I have looked through GLEANINGS, from January, 1901, to the present issue, and also the A B C book, and I have been unable to find any statement as to the approximate maximum limit of time that a queen can be safely kept confined (with very few bees) away from enough nurse bees and a comb for her to lay in. I do remember reading that one queen was on a trip to Australia 37 days. Is that about the maximum? And for such a detention from a comb may she be taken directly from her hardest work at laying? Does it not harm her to stop the egg-laying so suddenly?

I have now only 11 colonies, but 25 hives, all home-made. These hives are exactly in dimension with standard hives, but are made of soap-boxes and meat-boxes. The information I wish is, where in the A B C are exact dimensions of all standard hives given? I think that the book ought to contain, besides its working drawings, the inside details mentioned, so that bee-men may have all their information in their bee-encyclopedia. Without having a ten-frame hive to copy, I obtained the inside width with much difficulty; and I am even now not sure I am right. The only hint I could get was a statement by the editor that a half-inch plus the width of ten frames for ten-frame hives was allowed, and this was found in answer to an inquirer last summer in GLEANINGS. How about those twelve and sixteen frame hives? I keep bees only for experiment and recreation, and wish to try these larger sizes. JOS. G. BAIER.

New Brunswick, N. J., July 9.

[We do not give exact dimensions for making hives in our A B C of Bee Culture, and you will see the reason why if you read the chapter and the article on *Hive-making*. There are very few people who can work from dimensions or drawings, and the better way is for the average person to send and get a sample of the hive in the flat, such as he desires to copy, and then work from the pieces of this. The dimensions of the different *frames* that are in use are given under head of *Hives*. You can get approximately the dimensions of a hive by adding ½ inch to the outside length of a frame. This will give the inside length of a hive. If you add ¼ inch to the depth of the hive, that will give the depth of it. The width depends upon the number of frames. Frames are spaced 1⅜ inches from center to center. Decide on the number of frames you desire to use, then add ½ inch to allow for bee-space on each side, and this will give you the width of the hive. But, as I said before, your better way would be to get a hive and then work from that; otherwise you will come to grief.

As to the length of time that a queen can live in a cage without comb, all depends upon the age of the queen and the kind of usage to which she has been subjected during the time. We have had queens confined in our office as a matter of experiment, with a dozen bees, for five or six weeks, and a cage of bees and a queen may be put in a hive, and sometimes live all winter.—ED.]

SOAP-SHAKER FOR CLIPPED QUEENS; METHOD OF HIVING SWARMS; NUMBER OF BEES IN A POUND.

Instead of using a cage made out of a section, like H. Piper's, page 535, I take a soap-shaker (those little cages that are used with a piece of soap in to make suds for washing dishes and clothes). They open and shut like clam-shells. The long wire handle can be used to hang them up by.

In using, I cage the clipped queen (I have my queens all clipped) by picking her up in my hand and allowing her to run into the side that is nearest to the flying bees, turning the wire-cloth side toward them; and when she is trying to get out through the meshes I shut the cage up and fasten the jaws together by adjusting the tin fastener that holds them together. I like this cage better then Mr. Piper's, because I can fasten it to a limb of a tree, a pole, or anywhere else. If you fasten it to a pole you want to tie a small limb to the pole near it for the bees to cluster on, which is better then Mr. P.'s ladder.

I have often tied a small market basket to the pole, and then tied the cage so it would be partly in the basket, then watched the bees cluster as I held it up so they could find it. Watch them and you will see one or two alight on the cage, and run about it for a minute or two, then fly away, and soon be back with three or four others. Soon they are gone again, then more will accompany them back, and so they go back and forth until a few begin to cluster, then soon the whole swarm will alight. Now take them to your prepared hive; shake before the entrance, and release the queen and you are all right. Late years I wait until the bees return to the old stand, and let them run into the new hive that I have placed there for them, releasing the queen as they enter.

In reply to Dr. Miller's Straw, page 528, you reckon 5000 bees in a pound. How came you to change your estimation, for you used to claim that 3000 make a pound? I have counted a large colony that swarmed, and found between 8 and 9 pounds that clustered, and but a very few bees left on the combs (not more then a pound), and it took a little over 700 to make a quarter of a pound, so there were not over 3000 bees in the hive. If I had a colony that I thought contained 70,000 bees I would count them before reporting to a paper. I have counted bees that have been starved, and found that it took nearly 5000 to make a pound; but we don't find bees in that condition when we weigh them; for when we buy or have a swarm they are filled with honey.

J. L. Hyde.

Pomfret Landing, Ct., June 22.

[Your idea of a soap-shaker is good. It is a handy implement that can be purchased at almost any tinshop or hardware store.

You say, "If I had a colony of bees that I thought contained 70,000 bees I would count them before reporting to a paper," implying that our estimate as to the number of bees to a pound was overdrawn. Let me refer you to Prof. B. F. Koons, of the Connecticut Agricultural College; Prof. C. P. Gillette, of the Colorado Experiment Station; and to Prof. Lazenby, of the Ohio Experiment Station, for the number of bees in a pound. These scientific men, all of them, had at their disposal delicately adjusted scales, and in one instance, at least, a pair of balances that would weigh to the millionth of a pound. It was a remarkable fact that the figures of all of them as to the number of bees in a pound, under different circumstances and at different times, were approximately the same. Their estimates were from 4000 to 5600 bees to the pound. When the bees were loaded, of course there would be fewer of them than when their sacs were empty or when just going to the fields.—Ed.]

THE GOOD OLD HONEY YEARS HAVE COME BACK.

On my return from Florida, May 2, I found that many colonies had died of starvation. They had sufficient stores to last them until fruit-bloom, and built comb under the devices, starving later. I fed at once, giving them all they would carry down, until they neglected the feeders, going to the fields. This heavy feeding paid well. My bees have stored more surplus than neighboring apiaries. If cool weather followed the hiving of a swarm, I fed them until it was warmer.

Old settlers say they never saw before such a growth of white clover. Ground is white, the heads touching each other, and it still continues. Basswood bloomed July 1, but it lasts but a day or so in the valley along the Illinois River. The weather was cloudy and cool, and I could see no difference in the honey-flow.

During the past dozen years or more, our colonies have been growing less, the increase less than winter losses. This season it is different. Last winter's combs are nearly all covered. Swarming has been quite erratic. Many colonies appeared to be superseding their queens, and a swarm would be divided up into several. I shall soon have these small swarms in good-sized colonies, feeding whenever there is a dearth of honey.

SURPLUS.

When I saw the white-clover honey coming in, just as it did in the good old honey years, I felt like dancing for joy, even if I am old and rheumatic. I got out the extractor, and it never threw out nicer honey — light in color, thick, heavy, oily, and rich. Why, it appeared as if, as soon as a bee came out of a cell, it was immediately filled with honey. I tied cheese-cloth over the top of a jar, and it would be full and running over, before I thought of such a thing. I've had many a curtain lecture about stirring up those bees; "let 'em alone; you make 'em cross." The temptation was too strong to resist. I would quietly slip away, take out a few combs, and extract them, unbeknown to them all.

A good many colonies have finished cases of sections, and are working on the second. The good old honey years have come back to stay, and let us rejoice and be glad, and give thanks to the Giver of all good.

Peoria, Ill. Mrs. L. Harrison.

THE SALISBURY PRESS AND THAT "ACHING VOID."

I do not laugh very often; but while reading about that "aching void" under one of Miller's Straws I so far forgot myself that I laughed out loud, all my myself. If the ordinary bee-keeper undertakes to make our press by hand I am thinking his aching void will ache quite severely before he finishes the machine. F. A. Salisbury.

Syracuse, N. Y., June 6.

RAISING QUEENS IN TOP STORY.

It has occurred to me that I could raise young queens in the top story of my hives, where I have a perforated board that separates it from the bottom, so that the old queen can not get at the cells in the top. Let me ask whether the hatching of a queen in the top will lead to swarming, and, second, will the young queen be likely to enter the top after being out on her wedding-trip if the top hive has an entrance? What do you think of it any way?

Paterson, N. J. L. CLAXTON.

[You can raise queens in the upper story of a hive, and have them fertilized, sometimes, during the honey flow. Cells will be built very readily in the upper story, but not during a dearth of honey unless the bees are fed. The chance of getting the queen fertilized upstairs, even under the most favorable circumstances, is not good, to say the least. The plan fails too many times to make it really a success.—ED.]

COMBINED SECTION-FORMER AND FOUNDATION-FASTENER.

Mr. Root:—If you will refer to GLEANINGS for May 15, page 448, you will see there a picture of a "handy section-press" by Anton G. Anderson. When I saw that illustration I said to Mr. V. V. Dexter, who is working with me, "There is a principle which can be applied to a combined section-press and foundation-fastener." He suggested adding it to the Daisy foundation-fastener, and the enclosed drawings show you the result — a combined machine that is giving us splendid service, and, unlike all other combined machines on the market, it is easily adjustable for different-sized sections by changing the position of the lever D by removing pivot C and inserting it again in the next hole in the lever, marked E. The machine should be upright, or nearly so, and the hot plate should slope a trifle *forward* so as to melt as little foundation as possible, and use the melted wax in fastening to the very best advantage. The pivot C should be high enough to admit freely the tall section. When the square section is used, the lever D is simply brought down a little further by the foot.

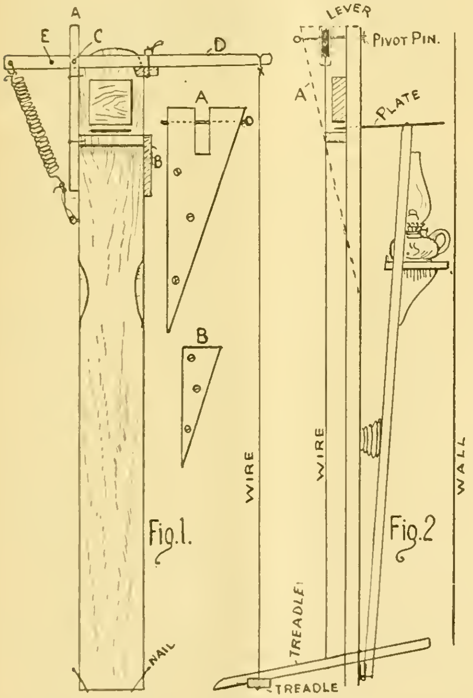


Fig. 1.
Fig. 2

When the treadle is pressed, the section is folded; and at the same time the plate is thrust forward (or, rather, the section and press are pulled back) so as to expose the heated edge of the hot plate, so that the one treadle both folds and attaches the foundation.

I believe your mechanics could work this out so that you can sell the wooden pieces A and B, lever D and spring, when all your customers now having the Daisy could send to you for the press attachments and screw the same to their old Daisy machines. Please let us know at once if you consider the idea of any value. Of course, you could put out a combined press and fastener for those who used a new machine or who do not wish to add the press to their old ones.

I had always doubted the utility of a combined machine until trying this one.

E. F. ATWATER.

Boise, Idaho, June 6.

[The plan you have outlined, and which we have had our artist sketch out, is perfectly feasible. It is a question, however, whether the average purchaser would not prefer to have the two operations performed by two separate machines. A section-former on the principle shown in the illustration is not as powerful by considerable as something like the Hubbard press, nor is it anywhere near as rapid. That it will do the work, there can be no doubt.

But in changing from a 4¼ to a 4×5 section, it will be necessary to have an extra hole in the standard A. When the pivot is changed, the bolt C would have to be put through the hole E, and should be, to get the best results, put through a hole in the standard A, a little higher up. This would permit the lever D to fit square down on top of the section.—ED.]

KEROSENE OIL FOR BEE-STINGS; HOW TO SCRAPE THE STINGS OUT.

For bee-stings, try a drop of kerosene oil, and *rub* it in. For a horse that upset a hive and got the result, take a gallon of kerosene and give him a bath at once. Scrape him with the back of a hand-saw, knives, or a piece of hoop iron, very hard, to scrape out the stings. Work on the throat first. Be quick about it. READER.

INSURANCE ON BEES.

In a few numbers back you spoke of insurance for bee-keepers. I have never seen any thing more than a mere mention of this subject; and if you can give us any information, general or specific, it would be highly appreciated.

CLIFTON F. PULSIFER.

Nessen City, Mich.

[Nothing more has been said on this subject. So far as I know, no insurance company will accept such risk; and yet I see no reason why bees are more subject to fire than any other property similarly exposed. If any one among the fire-insurance agents who are subscribers can give us any information, we should be glad to hear from him.—ED.]

REPORT FROM P. H. ELWOOD.

We had some April weather in March, March weather in April, and back again to April weather in May, and no rain—the worst drouth that has occurred in a great many years. Through June we had a very cold rainy time, making us think of April. Bees had a good run on fruit and dandelion, but it was all needed through June. In fact, some May swarms that came near the close of the flow starved. The wet weather came in very well to grow the white clover, of which we shall now have a small blow. Basswood will also be a short blow. Since the first of July the bees have been gaining on stores, and the crop of honey will depend on the weather for the next month. A small bloom with good weather will get a crop. We do not look for a large yield.

P. H. ELWOOD.

Starkville, N. Y.

GOOD SEASON IN UTAH.

Had we not last about every thing in the way of bees this would be a fine season, as the flow is good, weather prime, and bees working splendidly. One party at Plain City had 60 and lost 60; another, 78 and lost 70; R. has 1000, and lost 500; Frost, 300, and lost 150; Mitchell, 400, and lost 300; so you can judge of the State losses. South loss was small. Last season we got 5 cts. for extracted; asking 7 to-day; crops will be good for the number of stands. In the valley up the canyon, where we got the trout dinner, I lost every stand.

Ogden, Utah. C. W. FROST.

THE FORMALDEHYDE TREATMENT A SUCCESS.

Some of my best colonies to-day are those on fumigated combs, badly diseased with black brood in 1901 and '2.

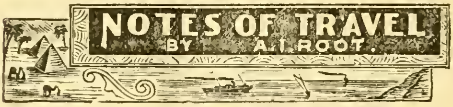
Mayfield, N. Y. G. W. HAINES.

AVERAGE CROP IN MASSACHUSETTS.

At present the outlook is good for a fair crop, and bees are gathering nectar quite freely from clover and sumac. As a rule we think that there will be an average crop with prices about the same in the New England States.

W. W. CARY & SON.

Lyonsville, Mass.



NOTES OF TRAVEL BY A. I. ROOT.

TOURING IN AN AUTOMOBILE.

July 10.—We made 125 miles yesterday, and both Huber and myself declare it was the most enjoyable ride we ever took in one day. Instead of feeling fatigue, I did not have any nap at all, which is something that has hardly happened before in years; and at 9:30 P.M. I voted to go on to a town 12 miles further. Mr. Auble told us a new motor would often take on some queer freaks, and we found it so. We were delayed but little when the machinery needed readjusting; but toward night, if we happened to stop it to inquire, or for any other reason, it was loath to start again, or if we went over a very rough place at high speed; but when it once *got* agoing it seemed to delight in going faster and faster. Huber is overhauling it now.

We arrived in Toledo just after dark. As the town was full of various patterns of automobiles, we joined in the merry throng and ran through their beautiful parks. The activity of the farmers in the fields was a delightful sight to me as we rushed through the rich country of Northwestern Ohio.

Metamora, O., July 10, 10 A.M.—The reason we didn't go 12 miles further was, the machine "wouldn't go." It said by its actions that 125 miles was work enough for its first long trip. Huber overhauled it, but this morning it still "gets its back up" whenever we stop a minute.

Later, same day.—A rubber tube used to let the water off (in freezing weather) got to swinging against a brass stopcock, until it wore a hole in the tube and let all the water out of our automobile. It was our business to watch and see to this; but we did not until the machine got pretty nearly "redhot." Something similar had been allowed to happen once before, and we now found why it was hard to start. Water was getting into the cylinder. When well under way the water was blown out; but when we stopped it accumulated. At Morenci, Mich., a crowd collected to see us start. Of course, there were many jests to the effect one could hitch up a horse in less time than *we* took to start, etc. Finally, off it went, and I had just time to turn to the crowd and say, "Good by, gentlemen," when it suddenly stopped again. Huber then declared we must get the address of Mr. Wilbur, the "bee-man," who had invited us, so we could get there with no more stops. So I took it down.

"Turn north at the hotel; go two miles

to the second cross-road; turn east three-fourths of a mile, then north half a mile."

When we finally got agoing again we did this, and in about fifteen minutes were at friend Wilbur's bee-yard. In the shade of an apple-tree Huber declared the machine would have to come apart until we could re-pack the cylinder head. This took about one day.

Mr. Wilbur has about 80 colonies of bees, and about 140 laying Plymouth Rock hens. He has a fine crop of honey, and gets about 100 eggs a day from his fowls. In working for comb honey he says he would rather have a few pounds less, and have *filled* sections, than to have so many partly filled sections to carry over. The latter never make first-class honey when finished the year after.

The auto makes lots of fun, and calls forth many jokes. A boy called to us in one of the towns, and we slowed up to see what was wrong. He just wanted to say, "Say, mister, your *whip* just dropped out of your buggy;" and for the first time I was reminded that *whips* and the manner of using them are to be a "lost art" in the great and near future.

HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

WINTER OR SAND VETCH; ANOTHER OF MY HAPPY SURPRISES.

When I first visited Traverse Bay region I was attracted by a plant that grew wild in the fields, that the people called "wild sweet pea." The great quantity of purple blossoms in long clusters, like the blossoms of the locust-tree, first attracted my eye; and then the great quantity of pods containing little bits of peas afterward convinced me it must be a valuable leguminous plant. I thought several times it might be valuable to grow for stock or to plow under; and last fall, in digging potatoes, I was once more greatly pleased to see a greater quantity of nitrogen nodules on the roots than I ever saw on any other plant. Last fall, after digging potatoes I tried the experiment of sowing Mammoth and Medium clover in the fall. After my first early potatoes, crimson clover was a big success, as I have told you. About half an acre of Mammoth clover, put in after Early Trumbull potatoes, produced a magnificent stand, and was knee-high and full of blossoms when plowed under the last of June. Medium clover, put in after an acre of Early Michigan potatoes, looked fairly well. But where I sowed clover as late as the middle of October it did not amount to very much, especially as the wild weeds got ahead of it. Now, mind you, after the potatoes were dug in October the ground was thoroughly harrowed with a spring-tooth harrow. I think all the weeds were thoroughly cut up and killed. This present summer, about the last of June, when I decided to plow up a six-acre field where I dug these late potatoes in October, I found this new leguminous plant growing with wonderful luxuriance. In fact, there were single plants, a perfect mass of purple bloom, large enough to make a pretty good wheelbarrow-load. The remarkable thing is that this immense plant must have made this growth after the ground was so thoroughly harrowed in October. If it came up in the fall it wintered very safely; and then it pushed ahead beyond any thing I ever saw before in the way of clovers or any other legume. The roots did not seem to be very large, but great branches put out like a squashvine in every direction. The blossoms stood up 2 ft. high. The boys tore it to pieces, and offered it to the horses that were plowing, and they ate it with great avidity. I at once mailed some of the blossoms, foliage, and roots, containing the nodules, to our Ohio Experiment Station; but before doing so I noticed that the plant bore a strong resemblance to a picture in the seed catalogs, under the name of hairy or sand vetch, also called winter vetch. Here is what Peter Henderson says in regard to it:

> SAND OR WINTER VETCH (VICIA VILLOSA)
>
> is perfectly hardy throughout the United States, remaining green all winter, and should be sown during August and September, mixed with rye, which serves as a support for the plants, or in spring with oats or barley.
>
> It grows to a height of 4 to 5 feet, and is the earliest crop for cutting, being nearly a month earlier than scarlet clover, and a full crop can be taken off the land in time for spring crops. Being much hardier than scarlet clover, this is the forage plant to sow in the Northern States, where scarlet clover winter-kills, though it is equally valuable in the South.
>
> It is exceedingly nutritious, much more so than clover; is eaten with relish, and may be fed with safety to all kinds of stock.
>
> Sow one bushel per acre with one-half bushel of rye or wheat.

I believe all of our seed catalogs recommend it very highly.

Now, I am going to purchase seed of different seedsmen, and plant the different kinds side by side with seeds also of the plant growing wild in Michigan. If it grows every season, in other localities, as it grows on my ground, single plants averaging four feet apart each way, planted after digging potatoes, it would cover the ground with an immense lot of fertilizing material in time to be plowed under for *another* crop of potatoes; and my impression is it is worth as much as clover for feed or for turning under.

The particular point that recommends it to me is that it is now growing wild on the borders of the woods and waste places in Northern Michigan. But the thing I can not understand is, why such a rank-growing leguminous plant should be allowed to pass all this time unnoticed—that is, up in that locality. Can any of the readers of GLEANINGS tell us more about it? I think it is offered by several seedsmen in 100-lb. lots at about 10 cts. per lb.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction. those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you. or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State. continental island. or European Country.

The A. I. Root Co. tells us that our stock is extra fine. while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy. of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt. of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda. of Demotte, Ind., writes: Send me six more queens. the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow. Pa., writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton Monterey. Calif., writes: Your stock excels the strain of Mr. ——. which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens After July First.

	1	6	12
Selected	$ 75	$4 00	$7 00
Tested	1 00	5 00	9 00
Select Tested	1 50	8 00	
Extra Selected Tested—the best that money can buy	3 00		
Two-frame Nuclei. no Queen	2 00		

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty: we give it our undivided attention. and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us. as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Long Tongues Valuable

South as well as North.

How Moore's strain of Italians roll in honey down in Texas.

Hutto, Tex. Nov. 19, 1902.

J. P. Moore.—Dear Sir:—I wish to write you in regard to queens purchased of you. I could have written sooner but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling. I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues: for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens. Yours truly.

Henry Schmidt.

The above is pretty strong evidence that red clover is not the only plant which requires long tongued bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5; dozen, $9.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho. Feb. 16. 1903.*

Prices of Queens: Each. $1.00; 12. $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

The Best Honey Queens

ON RECORD

Are those reared by The HONEY & BEE CO., Will Atchley, Manager. We breed six distinct races in their purity, from 6 to 35 miles apart. queens ready to go now. We make a specialty of one, two. and three frame nuclei and queens in large lots. Write for prices. they will astonish you. Untested queens of either race 75c each; $4 25 for six; $8.00 per dozen. Tested, $1.50 to $3.00 each. Breeders, the best that money can buy, $5.00 each. We guarantee safe arrival and perfect satisfaction. Address all orders to

The BEE & HONEY CO.,
Beeville, Box 79. Bee Co., Tex.

Wind Power

is the cheapest power known. For a farmer-bee-keeper, who has stove-wood to cut, water to pump, and feed to grind for stock, corn to shell, and bee-hives to make, nothing can equal a well-arranged power wind-mill. *The Bee-keepers' Review* for June illustrates a wind-mill thus arranged, and a bee-keeper who has such a mill, and uses it for all the purposes mentioned, contributes an article, giving cost, advantages, and drawbacks, together with several other interesting items on the subject. He has had his mill six years, and can speak from experience.

Send ten cents for this number, and with it will be sent two other late but different issues, and the ten cents may be applied on any subscription sent in within a year. A coupon will be sent entitling the holder to the *Review* one year for only 90 cents.

W. Z. HUTCHINSON, Flint, Mich.

Carniolans and Italians.

Choice Queens a Specialty

Having added extensively to our queen-rearing plants in the North and the South we can furnish any number of queens on short notice.

Carniolans. Very prolific, hardy, gentlest bees known. Great comb builders. Sealed combs of a snowy whiteness. A worker on red clover.

Italians. Gentle, prolific, swarm very little, fine workers, and a red-clover strain.

The Carniolan-Italian Cross. A cross giving the combined qualities of each race, are hustling workers, the coming bee for comb honey.

One untested queen, 75c; 6 for $3.90; 12 for $6. Tested, $1.25. Best breeder, $2 50. Best imported breeder, $4. For full colonies, one or two frame nuclei, large orders for queens, send for descriptive price list. Orders booked now will be filled when desired.

F. A. Lockhart & Co., Caldwell, N. Y.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1.00 each; $5.00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Bred for Work

Terrace queens have given best of satisfaction; bred from selected stock; best of workers; very gentle, and fine color. Untested, 75c each; six, $4.25; twelve, $8.00. Tested, $1.00; six, $5.00; dozen, $9.50.

Harold Hornor, Terrace Apiaries, Mt. Holly, N. J.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

TEXAS QUEENS FROM LONE STAR APIARIES. We are now ready to furnish you queens from the best stock of any race. These queens are equaled by few and inferior to none. Write for price list

G. F. Davidson & Son, Props., Fairview, Texas.

"Tested Queens."

No! not for color, but for honey. Will sell queens from colonies that have stored a good surplus from palmetto; some have 3 10-frame supers full to date. Old enough to show what they will do, but not aged. Price for queen and bee brush, $1.00.

SARAH A. SMITH,
Grant, Fla.

Red Clover and Three and Five-Banded Queens.

Untested, 65 cts.; 2 for $1.00. Fine tested queens, $1.00 each. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Plenty of queens, and go by return mail. Fifty and one hundred, special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENN.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them." Address

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

..Very Satisfactory..

The four dozen queens I got of you last year are very satisfactory, being good honey-gatherers, and gentle, and finely marked.

CHAS. STEWART,
Sammonsville, N. Y.
State Bee Inspector, 3rd Div.

June 19, 1903.

To induce a trial we offer WARRANTED queens at 75c, six for $3.50; fine select, $1.00, six for $4.50. Queens sent promptly; satisfaction guaranteed. Hybrids or poor queens replaced free.

J. B. CASE, Port Orange, Fla.

When you want Queens that please, and want them

By Return Mail,

join the crowd and send here where the spring rush is now over. I can guarantee them to leave promptly from now on, and arrive safe. ***Best Honey-Strains only*** are bred from Goldens, Carniolans, leather-colored Italians. 75c each, or $7.50 per dozen; tested, $1.00 each, or $10.00 per dozen.

George J. Vande Vord, Daytona, Fla.

FOR SALE—Fine, carefully reared queens, from a hardy, prolific, honey-gathering strain of 3-banded Italians, can also furnish queens from Doolittle Golden strain, if preferred untested, 65 cents; tested, $1.00; selected breeders, $2.50

EARL Y. SAFFORD,
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We are again rearing the best of queens for market. We have 1000 colonies of bees, the best stock, and 10 years' experience. We have either Golden Italians or three banders. Price, 75 cts. each; $4.25 for 6; $8.00 for 12; tested, $1.50. Safe arrival and satisfaction. Give us a trial. All orders filled promptly.

TEXAS BEE-KEEPERS

We keep a large stock of honey-cans of all sizes ready for prompt shipments. Get our prices. We also want all the section and bulk comb honey that we can buy, and will take some No. 1 extracted. We pay spot cash. Write us.

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Root's Improved Cowan BALL-BEARING Honey Extractor

They Wear the Blue Jackets.

Since the introduction of these extractors some 14 years ago to the bee-keeping world, we have been experimenting with a view to eliminating weak points, and perfecting the stronger ones.

All Sizes. We manufacture all sizes of extractors from the small 2-frame to the 4 and 6 and 8-frame machine-power (power machines made to order only). The can part of these extractors is made of galvanized iron covered with blue japanning, and neatly lettered.

Galvanized. The comb-baskets are galvanized wire, well braced; the hinges, hoops, cross-arms, and other metal parts, are galvanized after finishing, something you will get in no other on the market.

Band-brake. All four, six, and eight frame machines are provided with band-brake, which permits of the stopping of the machine instantly, without danger of breakage. These machines have large metal handles. Ball bearings are used which make them very light running. The honey-gates are large, which does not require the stopping of work to allow the honey to run out.

For sale by all large dealers in Bee Supplies.

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If you are interested in Cuba and want the truth about it, subscribe for the

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the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

For Sale.—3000 lbs. strictly first-class white-clover honey in 60-lb. cans. Sample and prices on application. G. A. Bleech, Jerome, Mich.

Sections, Shipping Cases, Honey Cases,

and every thing necessary for the bee keeper.
FINE ITALIAN QUEENS.
Prompt shipping. Catalog Free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street.

CARTONS FOR HONEY Wanted to introduce the best, most practical, lowest-price carton for honey, all things considered; costs nothing. We have wholesaled honey in this city for 30 years. We have seen no honey-carton equal to this. Send us five two-cent stamps, and we will send you sample, together with explanation, and some practical suggestions regarding marketing honey to best advantage; also live poultry. We originated and introduced the new popular one-pound section.

Established in 1870. H. R. WRIGHT.
Wholesale commission. Albany, N. Y.

Root's Goods in Central Michigan!

Sold at their prices. Present given with each order amounting to $2 or over. List sent free.

W. D. Soper, Rural Route No. 3, Jackson Michigan.

You'll Never Regret

buying the PAGE for your Fall fencing. It lasts.

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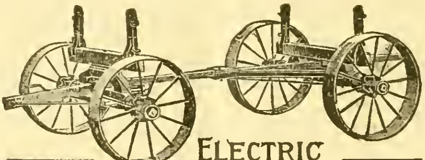

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WAX PROFITS.

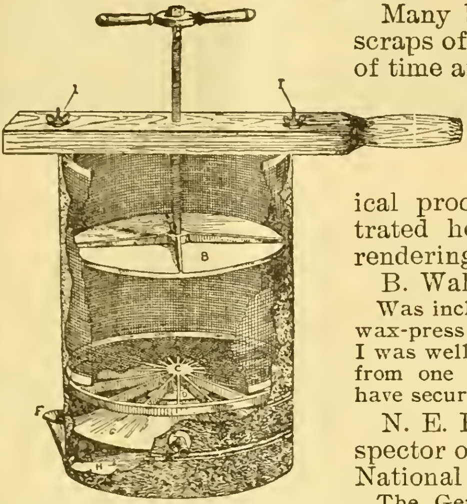

Fig. 169.—The Root-German Steam Wax-press. Price $14.00. Shipping weight, 70 lbs.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated herewith fills a long-felt want in rendering wax.

B. Walker, Clyde, Ill., says:

Was inclined to believe at first that the German wax-press was a failure; but after a thorough trial I was well pleased. I secured 30 lbs. more wax from one day's use of the machine than I would have secured by the ordinary method of rendering.

N. E. France, Platteville, Wis., State Inspector of Apiaries, and General Manager National Bee-keepers' Association, says:

The German wax-press is by far the best machine or process to save wax from old black brood-combs.

Manufactured by

The A. I. ROOT CO., Medina, Ohio, U. S. A.

We are now paying 30c cash, 32c trade, for average wax delivered at Medina.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
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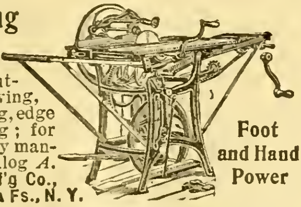

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Every necessity of the poultry business carried, all of the highest quality. Also Standard Bred Poultry, Hatching Eggs, etc. Write us your troubles and your wants. Ask for catalogue D. Sent free.

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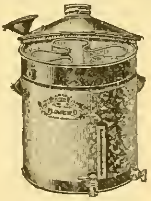
of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

THE LUCKY "4-LEAF CLOVER"



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PLYMOUTH ROCK SQUAB CO.,
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Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

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Organs
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Photographic Goods
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All this is fully explained in a book which we want to send you free of all charges---on request. The book gives the complete history and earning power of the mail-order business. It gives statistics showing that the famous co-operative stores in England cleared over 40 per cent on the investment last year.

We have reorganized our old-established mail-order business under the co-operative system. We want to interest you (no matter how large or small your capital) and we know you will be deeply interested if you let us send you our free book. It's a mine of interesting business information. It will make you either a shareholder (shares are $10 each) or a customer.

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It is understood that above will be sent to me free of all charges and that I am under no obligation whatsoever to subscribe. GLEANINGS IN BEE CULTURE.

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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E. R. ROOT, Editor of Apicultural Dept.
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The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

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SPECIAL NOTICE

Special Notices By Our Business Manager

BEESWAX.

Until further notice we will pay 28 cts. cash, or 30 in trade, for average wax delivered here. From one to two cents extra for choice yellow wax.

PRICES WITHDRAWN.

Lumber, especially basswood used in the manufacture of hives, honey-boxes, shipping cases, frames, etc., has continued to advance during the past year to such an extent that it is impossible to maintain present prices. Wages have also advanced to quite an extent during the year. We therefore withdraw prices in effect since September last on sections, hives, shipping-cases, and other wood goods. We hope to have new list prices ready to publish in next issue. Current orders will be filled at best prices we can make.

Apiary for Sale.

Owing to my age I have decided to sell my yard of 16 colonies, with extra hives, supplies, etc. Price only $75 for the entire outfit. Some colonies have made 75 lbs. each, comb honey, this season. A bargain. Call on or address
R. L. Holman, Springfield, O.

Pure Italian Queens in State of Washington.

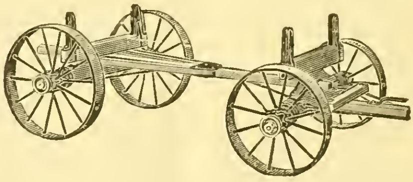
Untested, 70c; tested, $1.00. I can fully guarantee all my queens, as to gentleness, purity, and honey-gathering qualities, all being the best that can be produced. **Robt. Mirring, Dryad, Lewis Co., Wash.**

Queens Big hustling beauties, bred for business from choice honey-gathering strains; 3 banded and golden Italian, for the rest of this season, 55 cts. each, $6 per dozen; tested, 85 cts. each. Safe arrival and satisfaction guaranteed.
EARL Y. SAFFORD, Salem, N. Y.

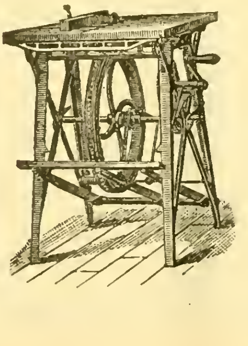
FOR SALE.—100 colonies Leather-colored Italian bees. A tested queen in each colony. In 8 frame Dovetailed hives. All right in every respect. No disease. Price $4.00 per colony; $3 50 each in lots of 20.
F. A. GRAY, Redwood Falls, Minn.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.
Machines on Trial.
Send for illustrated catalog and prices. Address
W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford. : Illinois.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange chaff hives for honey.
JAMES SHORE, Germantown, Pa.

WANTED.—Comb and extracted honey. See honey column. GLEASON & LANSING, Buffalo, N. Y.

WANTED.—A partner in the bee business, box factory, and a patent bee-hive.
D. S. HALL, So. Cabot, Vt.

WANTED.—To sell choice untested Italian queens, at 75c each; 6, $4.00.
CHAS. B. ALLEN, Central Square, N. Y.

WANTED.—To sell pedigree Belgian hares at $2.00 a pair. MRS. JANIE OSMUN,
Rural Route 1. Whitehall, Mich.

WANTED.—To exchange modern firearms for old gold watches and solid gold jewelry of any kind.
W. S. AMMON, Reading, Pa.

WANTED.—To exchange copy of *New York Herald*, April 15, 1865, in good condition, containing detailed particulars of President Lincoln's assassination. Best offer gets it. ELIAS FOX, Hillsboro, Wis.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell 69 colonies of bees, cheap; in tall hives, nearly square, frames 12½x14, outside measure; hives to contain supers and separators. Also 400 lbs. of fine clover honey, just extracted, at 7c on cars here. H. C. LANE, Twineburg, O

WANTED.—The address of every bee-keeper that makes his own hives. The "Kold Klimate" bee-hive makes the best outside case in the world for wintering bees in any kind of hives.
D. S. HALL, So. Cabot, Vt.

WANTED.—To furnish you select long-tongued Italian queens during August and September, at following low prices: Untested, 60 cts. each; 6 for $3.00. Safe arrival and reasonable satisfaction guaranteed. CHAS. M. DARROW, Nevada, Mo. Route 3.

WANTED.—To sell, for 65 cents each, choice untested queens, reared from selected mothers, the Carniolan-Italian cross—the coming bee for comb honey? A trial order will convince you. Satisfaction guaranteed. L. H. PERRY, Clay, N. Y.

WANTED.—To sell my Sable and White Scotch Collie dog, one year old, eligible to register, good farm dog, easily taught, good with children, very affectionate; thoroughly house-broken, and very handsome. Price, cash, $20.00, or will take $25.00 in honey.
F. N. CHAMBERLAIN, Tyngsboro, Mass.

WANTED.—At once.—Young man of staunch Christian character to work large apiaries and light ranch work out of honey season. Steady job with chance to work up. Pleasant home, good climate; 25 miles from railroad. Wages $30 per month. References A. I. Root, Medina, Ohio.
L. B. BELL, Camp Verde, Arizona.

WANTED.—We want to send a catalog free, of the Koger Well-drilling machine to anybody who needs a well at his house, barn, or fields. Especially for domestic well-making. The farmer's friend, two or more buying and doing their own well-making when other work is not pressing. Cheapest by half, and the most practical of any. Best money-maker on the market.
J. J. KOGER & SONS, Mooresburg, Tenn.

WANTED.—To buy an apiary in the South, or in Wisconsin. A. B BROWN, Groton, N. Y. R. D. 12.

WANTED.—Seed for blue-thistle plant.
J. M. MARTIN, New Carlisle, Ind.

WANTED.—Honey or any kind of syrup suitable for summer feeding. FRANK T. HOOPER,
E. Downingtown, Chester Co., Pa.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—To sell 110 colonies of bees at $3.00; 1500 L. Hoffman frames; also 150 colonies to let on shares. CHAS. D. BROWN, New Castle, Cal.

THE NORTH-WESTERN LINE
C.&N.W.R.Y.

$30 Colorado

And Return.

First class to Denver, Colorado Springs, and Pueblo from Chicago, daily, throughout the summer, good returning October 31. The

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fast daily train, one night to Denver from Chicago and the central States (only two nights enroute from the Atlantic seaboard), leaves Chicago daily 6:30 P. M.

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For sleeping-car reservations, descriptive pamphlet, "Colorado Illustrated," and full particulars, address

A. F. CLEVELAND, 234 Superior St., Cleveland, O.

BEES FOR SALE 100 3-frame nuclei with queen at $2.00, in lots of 10 or more. Less than 10, at $2.25. F. W. DEAN,
NEW MILFORD, PA.

FINE QUEENS FROM THE BLACK HILL APIARIES Golden and Long-tongue. Write for price list. Reference, G. F. Davidson & Son.
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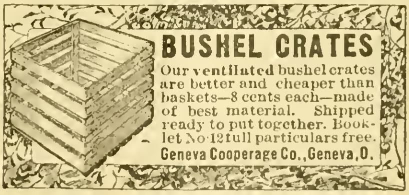
POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
Inland Poultry Journal, Indianapolis, Ind.



BUSHEL CRATES

Our ventilated bushel crates are better and cheaper than baskets—8 cents each—made of best material. Shipped ready to put together. Booklet No 12 full particulars free.
Geneva Cooperage Co., Geneva, O.

4,000,000 PEACH TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

PAGE & LYON,
New London, Wisconsin.

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AND DEALERS IN . . .

BEE-KEEPERS'
SUPPLIES. . . .

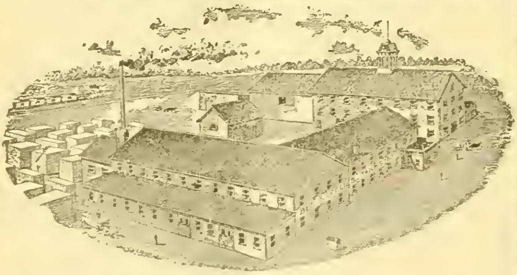
Send for Our Free New Illustrated
Catalog and Price List. . . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

**J. M. Jenkins,
Honeysuckle, Alabama.**

Shipping-point and Money-order
Office at Wetumpka, Alabama.



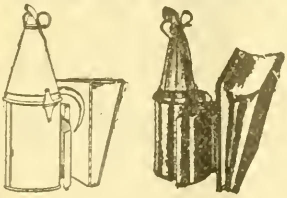
**Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.**

**BEE-
SUPPLIES!**

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa,
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
Henry Schmidt, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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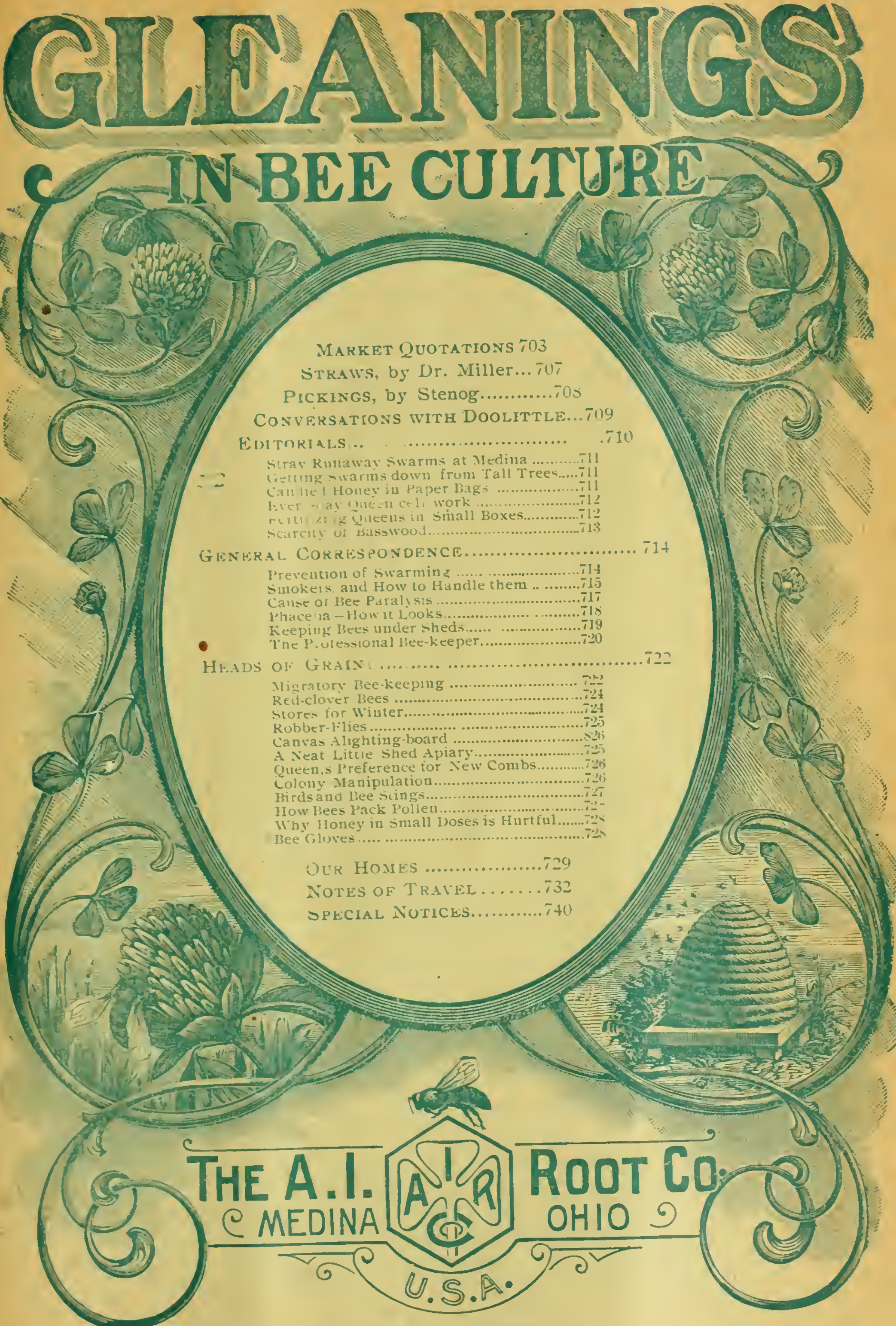
GLEANINGS IN BEE CULTURE



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THE A. I. ROOT Co.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Postoffice at Medina, Ohio, as Second-class Matter.

QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued, or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

AUG. AND SEPT. PRICES:

Tested, each	$1 25
Select tested, each	1 50
Warranted purely mated, each	75
Same, per half dozen	4 25
Same, per dozen	8 00
Untested, each	65
Same, per half dozen	3 75
Same, per dozen	7 00

We have also a full line of bee-keepers' supplies including **The A. I. Root Company's Goods, Root's Sections and Weed's Foundation a Specialty.** Send for our 32-page illustrated catalog.

W. W. Cary & Son,

Lyonsville, Mass.

TORONTO

is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-Keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

E. GRAINGER & CO.

12 Yonge Street Arcade.

Northeastern and New England

BEE - KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

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Mgr. The A. I. Root Co's. N. E. Agency.

WANTED

COMB and EXTRACTED

HONEY

If You have Comb Honey to Sell,

Write us Answering these Questions.

Quantity..................................
Gathered from ....
Put up in ....sections
Price at which you will ship.

If You have Ext'd Honey to Sell,

Quantity..................................
Gathered from ....
How put up...........................
Price at which you will sell.
Send sample..........................

We Want the BEST Grades in ANY Quantity.

THE A. I. ROOT CO.,
MEDINA, OHIO.

—THE—

DANZ. HIVE

The comb-honey hive is one of our specialties. Send for booklet telling about it.

We are the jobbing agents for The A. I. Root Company in Michigan, and want the name and address of every bee-keeper in the State, whether you have one swarm or 500.

M. H. Hunt & Son

Bell Branch, Mich.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE.—There is more activity in the honey business since our last report. Receipts of new crops are coming forward, and sales being made. The quality of the stock received seems very fine, especially the sections showing care in grading and packing, thus encouraging the consumer to partake. We are expecting a good demand for all grades, and the market is in good condition for shipments. We quote for fancy 1-lb. sections, 16@17; No 1 ditto, 15@16; old and new, dark or inferior, nominal, 8@10; extracted in barrels or cans, white, 7½@8; same, darker, 6½@7. Beeswax, 28@30.

A. V. BISHOP & CO.,
Aug. 6. 119 Buffalo St, Milwaukee, Wis.

TOLEDO.—Honey is coming in quite freely; and in spite of the warm weather it is in fair demand at the following prices: Fancy white comb brings, in retail way, 16; No. 1 ditto, 15; amber ditto, 12@13. Extracted, white clover, in barrels, 6; same in cans, 7. Beeswax, 28@30.

GRIGGS BROTHERS,
Aug. 7. 214 Jackson Ave., Toledo, O.

CHICAGO.—Consignments of the new crop are coming to commission houses that have not had honey for years past; and as there is not any consumptive demand they are finding difficulty in disposing of it. Under such conditions it is hardly possible to give accurate prices, as some merchants ask 10 cents for honey that others hold at 15. The prices given in our last quotations are asked, but feeling is unsettled Beeswax steady at 30 cents.

Aug. 7. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

COLUMBUS.—Receipts of honey are light, and demand quite good, selling white comb at 15@1[illegible]. We are in the market for comb honey in any quantity. Those having to offer for immediate shipment, please write us.

EVANS & TURNER,
Aug. 7. Columbus, Ohio.

PHILADELPHIA—Honey has been arriving quite freely in the last ten days. We quote extracted fancy white, 7@8; amber, 6@7; fancy comb honey, 15@16. No. 1 14@15. Beeswax in good demand at 30. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Aug 8. 10 Vine St., Philadelphia, Pa.

CINCINNATI.—New honey is now offered very freely, particularly extracted. The demand for honey is about as usual at this time of the season. I made sales at the following figures: Amber, 5@5½; water-white alfalfa, 6½; fancy white-clover honey, 7@7½; comb honey, fancy water-white, brings from 14@15. Beeswax, 27@30.

C. H. W. WEBER,
Aug. 8. 2146 S Central Ave., Cincinnati, Ohio.

DETROIT.—Prices are not established yet on new honey. The crop is the largest we have had in many years in our section of the State. Quality is excellent. Small lots are selling for 15@16 for A No. 1. Commission men are waiting until prices are settled.

Aug 8. M. H. HUNT & SON, Bell Branch, Mich.

ALBANY.—Honey demand improving somewhat. Light comb selling at 15, and think 14@15 will be the ruling price for months to come. Extracted, light receipts as yet, selling 6½@7½. Beeswax easier at 30@31.

MACDOUGAL & CO,
Aug 6. 375 Broadway, Albany, N. Y.

KANSAS CITY.—Some new comb honey in market on account of hot weather. The demand is not heavy but will be getting better every day. Fancy white comb, 24 sections, selling per case, $3 50. No. 1 white-amber, 24 sections, selling per case, $3.25. No. 2 white and amber, 24 sections, selling per case, $3.00 Extracted white, per lb., 6@6½. Extracted amber per lb., 25@30.

C. C. CLEMONS & CO.,
July 28. Kansas City, Mo.

BOSTON.—Naturally at this time of the year the demand for honey is very light, and quotations necessarily nominal ones. Fancy white comb honey 16, with a light supply. No other grades in the market. Extracted from 6 to 8 according to quality.

BLAKE, SCOTT & LEE,
Aug. 1. Boston, Mass.

SAN FRANCISCO.—Honey, new comb, per lb., white, 14½@15; light amber, 13½. Extracted, water white, 6½; light amber, 6; dark amber, nominal. Beeswax, per lb., 32; supplies light, and active demand.

ERNEST B. SCHAEFFLE,
Jul 24. Murphys, Cal.

CINCINNATI.—The supply about equals the demand for extracted honey. We are selling amber extracted in bbls from 5½@6½ according to quality. White clover, bbls. and cans, 7 and 8½ respectively. Comb honey (fancy) in no-drip shipping-cases, 16@16½; beeswax, 30.

THE FRED W. MUTH CO.,
Aug. 6. Front & Walnut, Cincinnati, Ohio.

FOR SALE.—New extracted honey, from 7c up. Several sizes of packages. Sample 10c.

I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Alfalfa honey. Extracted in 60-lb. cans, and about 20,000 lbs. in comb. Prices on application.

CHEEK & WALLINGER, Las Animas, Colo.

FOR SALE.—Fancy comb and extracted honey; extracted in 60 lb. cans Prices quoted on application.

WILLIAM MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—New honey. 2000 lbs. mostly alsike clover honey. Put up in 60 lb. tins, 2 in case; new cans and cases; $9.00 per case f. o. b cars or boat. Send 6c for sample. Address

IRA D. BARTLETT,
Lock Box 156. East Jordan, Mich.

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EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—To hear from producers of comb honey in California and Nevada. It may sound unreasonable, but we have probably bought, for spot cash, more comb honey than any firm in the United States, during the past three seasons. We can, no doubt, do you some good.

THOS. C. STANLEY & SON,
Manzanola, Colo., or Fairfield, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer,

SEAVEY & FLARSHEIM,
1318—1324 Union Avenue, Kansas City, Mo.

The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for w catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, New York.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

We Make a Specialty of

Prompt Shipments.

If you are in a hurry for supplies send us your order and we will surprise you with our promptness. All goods shipped within 10 hours after receiving the order. Over a million sections and two tons of foundation now on hand. Hundreds of hives, and all other supplies **READY FOR IMMEDIATE SHIPMENT.**

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Lewis C. & A. G. Woodman, Grand Rapids, Mich.

I. J. Stringham, New York City

105 Park Place.

OUR 1903 CATALOG is yours for the asking. The supplies listed in it are practical and up-to-date. We furnish every thing a bee-keeper uses, and will not be undersold. Silk-faced veil, 40 cts.; three for $1.05, postpaid. Full colonies of Italian bees in hive, $7.50; nucleus colonies, $3.50; tested queens, $1.00; untested, 75 cts. Apiaries, Glen Cove, Long Island.

Gleason & Lansing,
ESTABLISHED 1888.
150 Michigan St., Buffalo, N. Y.

Jobbers of Comb and Extracted Honey.

We have a large jobbing trade in comb honey, and can use any-sized shipments up to car lots. We want 5000 cases as early shipment as possible this season and can use all grades. Will buy delivered in Buffalo or handle for your account. . . . .

Correspond with us before placing your output this season.

REFERENCES:

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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Stray Straws

By Dr. C. C. Miller.

I AM SURE Wilmon Newell will take it kindly if I suggest what I believe to be an improvement on his entrance-closer, p. 675. Simply a piece of wire cloth with folded edges, large enough to cover the whole of the entrance, and project an inch upward, and then a piece of lath to nail over it. It costs less, and gives more air.

AFTER ONE HAS been stung a number of times, you say, Mr. Editor, p. 668, "While the pain is just as acute, the swelling and consequent fever do not appear—at least to only a very moderate extent." I think it may be added, for the comfort of the novice, that the acute pain does not last nearly so long after one has had enough stings. [Exactly.—ED.]

REFERRING to wired frames, George W. Strangway asks (page 675) what I have to say with regard to Mr. Doolittle's chat on page 426. Sound — just as I would expect any thing to be from Mr. Doolittle. But I don't see a word in it to hint that Mr. Doolittle has failed to get straight work with wired frames, nor, in fact, any thing to show variance between us.

DIFFERENCE in *locality* is a real thing, no matter how much it is laughed at. Mr. W. K. Morrison, p. 562, says, "When the swarming season arrives, the second chamber with drawn combs is added *from below*. This is a damper to the swarming fever." In this locality the swarming season does not arrive till after work begins in sections. Very rarely does a colony think of swarming before, most of the colonies not getting the fever till the season is well along.

THIS YEAR I have had a number of brood-combs filled with honey that would have been better in sections. I got the honey transferred into sections by giving these combs of honey instead of empty combs to shaken swarms. So far as I could see, these combs of honey were filled just as fast with brood as if empty combs had been given, even if the whole brood-chamber was filled with honey. If the honey was sealed I did some uncapping; but that may not have been necessary.

I WONDER if ye editor speaks by the card (page 675) when he says smoke from sound hard wood is less pungent than that from rotten wood. I always supposed that the sounder and harder the wood the sharper the smoke. [Yes, I was speaking from practical experience of a few days before. I had been testing some new smokers, trying various kinds of fuel, and noted the fact particularly that hard wood did not give the volume of smoke that was given off by porous rotten wood. In fact, all rotten wood is porous—more so than ordinary hard sound timber. If you will come to Medina some time I think I can make your eyes and nose smart more from rotten wood than from any hard wood you can scrape up.—ED.]

A CONFESSION of change of views with regard to colonies that "never think of swarming" is made by the editor, p. 559. Well, I have also a confession to make. I've chased so long and so hard after the will-o'-the-wisp non-swarming that I have become somewhat winded; and although I am still keeping up the chase, it is with a slackened pace; and this year I've done more at shaking swarms than for several years past. Although not half of them were satisfied to make no subsequent effort to swarm, that doesn't count so very much against the plan, for this has been the worst year for swarming I ever knew. [It appears we are now pretty nearly of the same mind, although a month or so ago we were quite far apart in our views.—ED.]

W. K. MORRISON, p. 672, says "the best distance to space the frames is 1¼ inches from center to center. Even 1⅛ is sufficient." That wouldn't do in as cool a climate as this. The smallest space I've ever found between combs filled with sealed honey was ¼ inch. More room is found, and is needed, between combs of brood, I think, because in so small a space as ¼ inch there can not be enough bees to keep up the necessary heat. With new comb, 1¼ spacing would leave ⅜ between brood-combs, and with combs old enough there would be only ¼ space. [A 1⅜ spacing seems to be about right in this climate. It is a very nice compromise between the widest spacing and the narrowest. A spacing of 1½ inches results in combs too bulky and too much drone comb. Some years ago we had quite a number of reports on this, and the general consensus of opinion favored 1⅜.—Ed.]

"One of the most important *secrets* in the production of comb honey," says W. K. Morrison, page 673, "is to have no drone comb in the brood-chamber, so that, when sections are put out, the bees rush up intending to construct drone comb." He also favors drone foundation in supers. In this locality I shouldn't like to have the bees think they could have drone comb in supers unless there be some deeper secret about it than I have yet learned. If the bees rush up to build drone comb the queen will rush up to lay there unless excluders are used, and I'd rather avoid the trouble and expense of excluders. Even with excluders there is an objection. If the bees get it into their heads that drone brood is to be reared above, they will hold cells open for that purpose. I have known cases where worker foundation did not entirely fill the section, and a corner would be filled out with drone comb kept empty, evidently awaiting the queen, while all the worker part was filled out with honey.

On page 674 I am quoted as saying that queens in a ball are never stung. I wonder if I ever said that. I think I can make bees sting a queen in a ball, always. All I need to do is to poke them lively with a stick in the effort to separate the queen from the ball, or to blow *hot* smoke upon them. I wonder if I didn't say that a queen is never stung in a ball *when the bees are left entirely to themselves.* Mr. Martin "gave them a few whiffs" of smoke. If that was hot smoke I should most certainly expect the queen to be stung. [I think I found nearly all the references bearing on this question; but in not one of them is there a suggestion of a limiting clause as given in your italics. Turn to pages 224, 395, and 592. But I shall have to make a little correction. It was not you who were so positive in the matter. It was our friend C. E. Woodward. But the evidence already produced shows that bees do sting the queen in the ball. I do not, however, agree with you that molesting the ball in trying to save the queen makes the bees any more anxious to kill her by stinging. The reason why the queen is seldom stung is because so many bees are picking at her that it is not possible for them to get their stings to her. The heads all point to her in the same direction, and their effort seems to be to try to pull or tear her limb from limb; and they do sometimes succeed in pulling her legs off and gnawing the wings. —Ed.]

Of 18 colonies shaken in the Wilson apiary, just half made no offer to swarm afterward; 3 started queen-cells within 10 days, and upon these being destroyed they started none afterward (which is, perhaps, not an unusual thing in the experience of some others); 4 have been found with queen-cells about every 10 days; 2 were found queenless 10 days after being shaken—either they swarmed and lost their clipped queens, or else the queens were accidentally killed. Five were shaken in the Hastings apiary, and every one of them swarmed or tried to afterward. They were a little more crowded for room in the Hastings apiary. [At our Harrington yard we had furious swarming; and yet of the colonies we had shaken, I do not remember the number, not one offered to swarm; and one or two colonies that acted as though they were about to swarm went quietly to work after they were shaken, and behaved in every sense as if they had swarmed in the natural way. Did you hive on starters, full sheets, or on combs? We used full sheets, with the results already given.—Ed.]

Pickings from Our Neighbors' Fields by "Stenog."

After copying what has been said in this journal about the destruction of our basswoods, a French bee-keeper says, in *Revue Internationale*, that the governments of Europe have been obliged to take hold of the matter and regulate the cutting of trees. It is well known, he says, that the destruction of forests is attended with many evils. He thinks the Americans should profit by the experience of Europe. The destruction of trees in Oregon and Washington, as now going on, will soon, he warns us, bear bitter fruit.

◆

AMERICAN BEE JOURNAL.

Concerning formalin, I copy the following interesting facts from an editorial based on information furnished by Schering & Glatz:

> It is probably the most destructive germicide known, although having little effect upon animals or man, the fumes being breathed, it is claimed, with little inconvenience. Yet it can hardly be a wholesome article of diet, for the doctors of Chicago object bitterly to its

> use in milk to keep it from souring, saying that such milk is death, slow but sure, if continuously fed to babies.
>
> It must not be understood that formalin is a cure for foul brood. All that is claimed for it is that by its use foul-broody combs may be disinfected so that they may be safely used in a healthy colony. Even this is a very important matter, as thousands of dollars have probably been lost by the burning of such diseased combs.
>
> The combs are submitted to the effect of the gas, and the most convenient way to use it is probably by means of formalin pastils vaporized in Schering's formalin-lamp. The lamp costs $1.75, including 10 pastils, and pastils cost 30 cents for a box of 20.
>
> For reliable disinfection of rooms in dwellings, one pastil is used for every 18 cubic feet. If it can be used at the same rate in disinfecting combs, a single pastil ought to be enough to disinfect 100 combs piled up in hive-bodies, costing only 1½ cents. Actual practice, however, will be necessary to determine the minutiæ, and to ascertain to a certainty that the disinfectant absolutely destroys all the spores.

BRITISH BEE JOURNAL.

In addition to what is said in GLEANINGS, p. 688, last issue, the following will be found to be of interest:

> The scheme of insurance for bee-keepers promoted by the British Bee-keepers' Association has passed its first year with satisfactory results to all concerned. Only one case came up for adjustment during the year, and that was promptly and satisfactorily settled. A new policy, covering the period between August 1, 1903, and August 1, 1904, has now been obtained, and premiums for risks under this policy have been payable since July 1.
>
> It is expected that the number of hives insured will be doubled this year, and we sincerely hope this expectation will be realized. Indeed, there is no reason why 50,000 hives might not be covered, to the advantage of the bee industry as a whole.

* * *

June was a frosty and backward month in England. "June 18, gave syrup; June 20 ditto," are among the records one bee-keeper says he put on his hives.

* * *

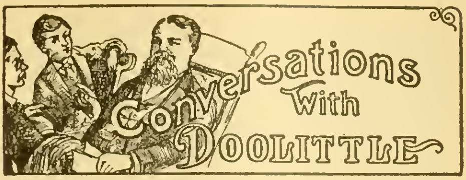
Concerning the Weed foundation, Mr. W. Woodley, of Beedon, says:

> The great advance of the Weed foundation on the old style of dipping the sheets of wax before being pressed into foundation is shown principally by the few complaints from users. We seldom now hear the cry that "the bees would not work it out into combs." Nor do we hear of any objections to the combs of which Weed foundation forms the midrib. Surely these are points of great importance to both the producer and the consumer of comb honey. I am exceedingly well pleased with the grand parcel of extra thin super foundation received from the British Weed factory at Holme, in return for my year's parcel of wax—it was simply perfect.

AUSTRALIAN BEE-KEEPER.

Here is something which seems to me to be in the right line. I have suggested it more than once in times past:

> In connection with the production of beeswax in the West Indies, a suggestion has recently been made that—inasmuch as muscovado sugar can now be purchased throughout the West Indies in wholesale quantities at from 3s. to 4s. per cwt., while beeswax is worth about $38 per cwt., and taking into consideration the fact that the honey-flow does not exceed four months of the year in the most favorable localities—it would pay well to feed the bees nearly the year round either with dry sugar, syrup, or molasses, making the honey produced a by-product and the wax the main product. It is said that it takes about 10 pounds of sugar to make 1 pound of beeswax; therefore should the suggestion prove a practical one, it would be a great boon to West Indian bee-keepers, who would no doubt then import a species of bee from India which is especially suitable for wax-production.



HOW TO BUILD UP A REPUTATION(?)

"Good afternoon, Mr. Doolittle. Hard rain we had this forenoon."

"Yes. So much rain and so few flowers so far this year, since our early drouth, that bees have not stored the usual amount of white honey. My crop will be scarcely half of the average year. How have your bees done, Mr. Jones?"

"We had quite a basswood yield, and I shall have a good crop considering the poor condition my bees were in when the drouth ceased. I understand basswood did not bloom in this locality."

"No, we had no basswood buds, on account of the hard freeze killing them—something I never knew before during the 34 years I have been keeping bees. If we could have had basswood bloom added to the yield from mustard, teasel, and red clover, undoubtedly quite a large yield would have been obtained."

"I came over to have a little talk with you about putting my name and address on cases of honey when the same is to be shipped on commission. Would there not be an advantage in so doing?"

"Possibly, if the commission merchant would allow you to do this."

"Do you think he would object?"

"I think so. For several years I sold my honey to a dealer in Syracuse, and he insisted on having the honey brought with no marks of any kind on the cases save the gross weight, the tare, or weight of the crate, and the net weight of the honey. When I asked him the reason for this he showed me stencil plates bearing his own name and address, and said, 'I put my name and address on every case of *really fine* honey which I buy, so as to build up a trade in honey; and with the inferior grades that came with any lot I leave the stencil-mark off, so that none but the very best bears my name, and thus I am gaining a reputation year by year which is growing constantly. If I allowed you to put your name on the cases it would not help *me* a bit; and as long as *you* sell to me each year it could be of *no benefit* to you.' "

"Did you believe it?"

"Not at first; but after a year or two I saw that his line of reasoning was correct; for every year gave him a larger range of customers, so that soon he was handling honey by the tons instead of by the hundreds of pounds. He was removed by death, and after this I wrote to commission merchants asking them if they would allow me to put my name and address on each case."

"Did they allow you to do this?"

"Some of them said no, and some said I had better put my name on the sections, if I did any thing of the kind, but advised leaving my name off entirely."

"What course did you pursue?"

"I purchased a rubber stamp with the words "From G. M. Doolittle, Borodino, N. Y.," on it. I could now, in a moment, put my name and address on any thing I wished, from a postal card to a bee-hive. Outside of the object intended, I have found this stamp of great benefit to me in many ways, and I would advise you to procure such a stamp anb see how much in time, money, and temper it will save you."

"Where can they be purchased?"

"I believe the A. I. Root Co. can furnish such stamps."

"Did you use it on your honey?"

"Yes, on the very best, the same as did the honey-merchant who died, leaving it off all second quality and poorer grades."

"Did you put it on the crates or sections?"

"On the sections."

"Was there not a great amount of work to this?"

"Not as much as would appear at first thought; for after the sections were all in the shipping-case, and before the cover was put on, it took only a moment or two of time to stamp all the sections in that case, tnus letting the consumer know by whom such honey was produced, while the commission merchant received all the credit with the retailer."

"What was the result?"

"Letters inquiring if I could send small lots of the same kind of honey to consumers, for the honey bearing my address was the finest of any section honey ever purchased."

"Of course this made a market for all of your best grade of honey."

"Well, not exactly."

"What was to hinder?"

"Two things—yes, three."

"What were they? I can not think of any."

"First and foremost, these parties mainly wished me to ship them honey to be paid for on receipt of the same; and after being beaten out of two or three lots I refused to send any more in that way, for this loss brought the price of the whole down to little if any more than I obtained through the commission merchant. Second, the deal was generally for only a case or two, some even wanting me to ship in half-cases; and these little shipments proved far more liable to breakage than large shipments; and unless paid for in advance a reduction from the contract price was requested, and from this some dissatisfaction arose to both parties, so that there was little pleasure in such a transaction. Third, with the demand for payment for the honey f. o. b. cars, came a large amount of what usually proves useless correspondence, for most of the parties did not feel disposed to purchase honey in that way, so that, owing to these three things, I soon settled to the conclusion that it was more profitable in the long run to keep my name and address off all honey shipped on commission; and for the last five pears I have sent all that I could not readily dispose of in my home market to commission merchants in Boston, New York, and Philadelphia, without letting anybody but the commission merchant know where the honey came from."

"But did you not admit at the start that there might be an advantage in putting my name and address on the shipping-cases?"

"Yes; but I qualified the matter by using the word *possibly*. There is a possibility that, in your locality, and with more time at your command, you could do better than I have done. Then, again, if you can get your commission merchant to allow you to put your name and address on the cases instead of on the sections you could deal directly with the retailer, and in this way receive larger orders than that from consumers."

Editorial
By E. R. Root.

As will be noticed elsewhere in this issue, I took a flying trip up through Wisconsin and Michigan to look up the basswood situation for sections; and owing to my absence from home I could not prepare my usual answers to Straws in last issue. I make this explanation as some may wonder why the usual footnotes were omitted.

A. I. ROOT AND HUBER JUST AS THEY WERE STARTING ON THEIR THOUSAND-MILE TRIP.

Elsewhere in this issue will be seen a snap-shot of the oldest and youngest of the Root Co. in their brand-new automobile, just as they were starting out on their long trip among bee-keepers through Ohio and Michigan. Huber, as will be seen, is the chauffeur, and A. I. R.—well, he is going to have a good time. He is just as happy as the small boy with a new pair of boots. At first the senior Root was expecting to go with Mrs. Root; but we younger Roots and Rootlets, as you know, insisted that that should not be, as it would not be wise—might run into a ditch or over an embankment. So it was arranged that Huber was to post himself up and become a professional chauffeur, and this he has done to such an extent that the trip, barring one or two breakdowns, has been a success. On my trip through Michigan I met the pair after they had been over hundreds and perhaps a thousand miles of journey. Both of them looked healthy and well, for the outdoor air and the enthusiasm of flying through it, as it were, proved to be a wonderful tonic.

MR. FRANCIS DANZENBAKER AT MEDINA.

MR. FRANCIS DANZENBAKER, of Washington, D. C., inventor of the Danzenbaker hive and system, is here again on one of his annual visits. He appears as active as he did a year ago, and looks more the picture of health to-day than I ever saw him. He believes in plain food, in scientific physical culture, and all his life has been an abstainer from any kind of narcotic, drinking neither tea nor coffee, and tobacco he never used. He believes that he has his hive as nearly perfect as possible, and expects to devote the remainder of his days (and he is good, the doctor says, for twenty years) to the production of fancy comb honey, for he practices what he preaches—uses his own hive and system.

Speaking about physical culture, I was surprised to see how easily our friend at 66 was able to go through with the simple exercises. His mind is as clear as the average man at the beginning of his prime; and he attributes this good health to his abstemious habits, and bathing.

STRAY RUNAWAY SWARMS AT MEDINA, AND HOW THEY ARE CAUGHT.

NEARLY every season, when swarming is on, farmers will bring word that a swarm of bees is hanging from a tree on their premises, some two or three miles out, and that if we will go after them we can have them. Or word may be telephoned in, with the polite intimation that we can have the bees for a small "consideration." As a general thing we are rushed with work at our own yards, and do not care very much about chasing around the country for stray swarms. But they must be taken care of, especially if they are blacks or hybrids, for we can not have swarms of either within half a mile of our own yards. It hardly pays to send a man in a buggy, so of late years we have been sending out one of our boys with a potato-sack, a pair of pruning-shears, a smoker, bee-veil, gloves, etc., on a bicycle, to go after them, bag, and bring them home. And right here the bicycle serves a very excellent purpose. The trip can be made quickly; and as the weight of the bees themselves rarely exceeds eight or nine pounds, they can readily be carried.

One of our men, Mr. Geisinger, had just returned from one of these trips. I told him to wait till I could photograph him, and the result is shown on page 723. The bicycle he rides is a regular chainless, having a carrier attachment over the front wheel. The bees, when bagged, can be set down in this carrier, or can be held with one hand while the other is used for steering. But if the swarm is a heavy one, it would be more practicable to carry it resting on the handle-bars.

There is nothing better for the purpose than an ordinary potato-sack made of burlap. It has a wide mouth, and can usually be slipped around the bees, and the mouth of the sack tied before the limb is even cut. And right here the pruning-shears are brought into requisition. It will be noted that one of these implements, as well as a small-sized Corneil smoker, is hooked into the belt. When so equipped with bee-veil and long-sleeved gloves one is prepared for almost any emergency.

GETTING SWARMS DOWN FROM TALL TREES WITH A SHOTGUN.

ONE of our subscribers, Mr. Isaac Alexander, of Waldenburg, Ark., a view of whose shedded apiary will be found on p. 720, noticing what I said on p. 623 about getting swarms down from tall trees, wrote he had been very successful in the use of a shotgun. One swarm had clustered up a tall tree, near the crotch, where the limbs were large. After a good deal of effort he managed to reach them and scoop or scrape them off. But they took wing and clustered still higher. Again he took after them and shook them off. Again they clustered higher still, until they got up beyond his reach. The idea finally struck him to use a shotgun. This he did by sending five charges up among the bees. Whether there was any mendacity in this act or not he does not say; but the effect of the bombardment fired up *their* mendacity, and they stung every thing in sight. But he says they finally clustered lower, and he then hived them.

Mr. W. F. Marks, of Chapinville, N. Y., had a similar experience. The bees clustered too high for him, on a big tree, or, rather, he did not care to climb after them. As a matter of curiosity he fired a charge of shot up among them, with the result that they were completely disorganized, and came down. He subsequently hived them from a more get-at-able position. Of course, it is perfectly plain that the shot would kill a good many bees; but it is better to lose a few bees, perhaps, than to lose them all.

CANDIED HONEY IN PAPER BAGS IN HOT WEATHER.

OUR readers will remember that we secured a small kegful of candied alfalfa honey, put up in bags by R. C. Aikin, of Loveland, Col. When these were first received they were as hard as bricks, the honey so stiff and bricklike that it was difficult to run a case-knife down into it. The question was raised last winter whether or not honey put up in this form would not become soft, leaky, and dauby during warm weather—that is, left on the shelves. To determine this point I put one sample up on a shelf in my office. It faced a north window, and of course the direct sunlight could not by any possibility get on to it. To-day, July 30, as I was looking over some of the other stuff on the shelves I noticed crystalline drops of honey oozing out of one side of this test-bag, and on picking the package up I was surprised to see that the contents had become as soft as summer butter. The little white globules of honey oozing out all around the bag, pushed themselves through the pores of the paper in spite of the paraffine covering.

On the other hand, we have some candied honey put up in glass *sealed*, that is *almost* as solid as it was last winter; and I naturally supposed that candied honey that was dry and hard in winter (whether sealed or not) would remain so in the bags. The explanation of this is doubtless due to the fact that candied honey as well as liquid honey absorbs a large amount of moisture from the atmosphere. This bag of candied honey had been open some months previously, to determine the consistency of the honey, and the top had been folded back, but probably not tight enough to keep out the moist air.

A large trade has sprung up in paper bags for candied honey. It is possible that some will be disappointed, and blame the Root Co. as well as our friend R. C. Aikin. But if the honey is sold within six months from the time it is put up, it will probably escape the hot weather; or if the top of the bag is sealed hermetically tight with sealingwax, or any substance that will make an air-tight sealing, the honey will probably remain in the solid condition. so as to stand any amount of rough usage during the hottest weather.

I make this as a suggestion to those who have purchased the bags, for it is well to err on the safe side if we can. No harm can possibly come from making an air-tight sealing; and perhaps it may be a wise precaution, after the bags have been filled, the honey candied, and the top sealed, to treat the whole package further with another coat of paraffine by dipping it into hot wax—not *too* hot.

A SAMPLE OF THE EVERY-DAY QUEEN-CELL WORK AT THE HOME OF THE HONEY-BEES.

LAST month Mr. F. J. Strittmatter, of Youngstown, O., an enthusiastic bee-keeper, stayed with us several days. He said he desired an opportunity to learn modern bee-keeping, and requested the privilege of following the men around, asking questions as to why this, that, and the other thing were done, all of which was freely granted. He brought with him a kodak, and while here he took a number of snapshots. Among the number is a very excellent picture showing some queen-cells reared from wooden cell cups. This we reproduce on page 725, not as a sample of the best work our men can do, but of what they have been doing day after day. These wooden cups are nothing more nor less than little cylindrical plugs of wood about ¾ in. in diameter, and the same in length, in one end of which is bored a hole about ⅜ inch deep, of the shape and size of a queen-cell. Into this is put a plug of soft warm beeswax. A forming-tool is forced down into the hole, reaming out a nice queen-cell inside of the wooden plug. A lot of them are prepared in this way, and then these are stuck, by means of nail-points, on to the extra cross-bar. They are next grafted with royal jelly and young larvæ from a select mother. A cage made of perforated metal, large enough to slip over the whole lower portion of the frame, is then slipped over the whole, when it is put into a queenless colony, as we find cells are started better in such stocks than in an ordinary upper story. After the cells are once begun they may be put into an upper story of a strong colony for final completion.

If you look carefully you will see where the perforated-metal cage already mentioned was slipped over these cells, by the line of wax or propolis that is deposited along the sides of the false cross-bar. Sometimes we used a cage of this kind, and sometimes we used a cylindrical Stanley cage, such as we illustrated on page 446, for we have been testing this in an experimental way, and so far are well pleased with it. Instead of using Stanley's gun-wads as a stopper for these cages, we employ the wooden plugs, which we can use over and over again for cell-building. As these plugs are of wood, they can be very readily handled — can be shoved into the sides of a comb, or can be used to stop up a cylindrical cage, either of queen-excluding metal or of ordinary perforated metal, which neither bees nor queens can go through.

It will be interesting to note in this connection that our men use a glove, to the wrist of which is sewn an ordinary straw cuff. The fingers of the glove are cut off at the tip. This gives good protection to the hand and wrist, and at the same time allows the use of the fingers for the purposes of sensitive touch.

FERTILIZING QUEENS IN SMALL NUCLEUS BOXES ATTACHED TO THE SIDE OF A SMALL COLONY.

ON p. 536, June 15, one of our correspondents told how he had succeeded in getting queens fertilized in small section boxes attached to and made a part of a strong colony run for extracting. This plan is substantially the same as was advocated by Swarthmore a year ago. I promised to give it a test in our yards, and report. I had forgotten all about the matter until I received the following communication from Mr. Doolittle. Before I tell how the thing worked I will give his letter right here:

Friend Root:—Have you tried the plan of rearing and fertilizing queens in full colonies as given on p 536? You said you were going to. I tried it quite extensively on four colonies, and it proves, as I half expected, to be the same as fertilizing in upper stories over a queen-excluder, only that, so far, I have not succeeded in having a *single* queen thus fertilized. They take them and keep them all right till they are from three to six days old. when the bees begin to persecute them, and finally kill them or drive them off as they do drones. I hope you have tried and will report.

Borodino. N. Y., Aug. 4. G. M. DOOLITTLE.

Yes, we tried the plan, but it was a most complete fizzle. Like our friend Doolittle, we did not succeed in getting even *one* queen fertilized. I have no doubt it can be made to work under *some* circumstances; but because of its unreliability we feel that we can not afford to fuss with it. We succeed best with a nucleus, not less than one full-sized L. frame, and two are better. The plan that we used last year successfully, and are using this year, is to take an ordinary eight-frame upper story and divide it off into three compartments lengthwise. The bottom is covered with wire cloth. Each one of the compartments has a small entrance — one on each side, and one in the end for the middle compartment. A frame of brood and a comb of honey with bees are put into each compartment, and the same is put on top of a small colony. The advantage of this arrangement is that it saves room in the yard, puts the nuclei up at a convenient working height, and during cool weather or at any other time permits the heat of the strong colony to rise up and keep warm the little cluster above. These nuclei can be treated in very much the same way as the ordinary two-frame nuclei, and cells or virgins that are given to them will soon develop into laying queens.

While some of our friends have been able to make a small nucleus work successfully, we have not. Even so successful a queen-breeder as Doolittle has failed. But even if he and ourselves could both make it work, after all would it pay? Those of us who have a large queen-trade must have a plan or method that will work, not once in a while, but *all* the time and under all conditions. When orders come in for queens, they must be filled. It does not do to tell a customer, when the season is at its height, and all conditions are favorable for rearing queens, that he will have to wait three weeks or until the queens can become mated. If his hive is queenless, he wants the queen *right now* or never.

SCARCITY OF BASSWOOD FOR SECTIONS; FOREST-FIRES AND THE WANTON WASTE OF OUR VALUABLE TIMBERS.

We have been out on little trips looking for basswood for sections another year; and while there is possibly ten years' cutting left, the territory where this useful timber grows is so limited that, with the big mills that are now cutting it—millions and millions of feet of it every year—it will be only a short time before we shall have to look to something else for sections—possibly go back to the old four-piece or nailed section.

Some years ago a fad was started for what was called the "snow-white" section; but if bee-keepers in the future shall be able to get a fair quality of cream and white, they may consider themselves fortunate; and, what is more, the price will necessarily be considerably advanced, owing to the sharp advance in the price of the timber from which it is cut. We are now paying more than double for basswood than we did a few years ago; and the rush for this material, now that pine is so scarce, shows that there will be further advances soon. As it is, white stock is getting to be so scarce that the manufacturers will have difficulty in getting enough of it for No. 1 sections, and will be compelled to put in a large percentage of cream. Such lumber is fully as good — just as tough as white; indeed, I have always argued that the cream section shows off honey *better* by contrast than the so-called "snow-white."

There is, however, what is called the heart basswood, of a reddish color, that should not be confused with ordinary cream lumber. Such timber would hardly do for sections. It is too porous or punky.

Our people have scoured the country for basswood timber; and the alarming fact is, that pine, having become so scarce, basswood is now being used very extensively for purposes of building. The furniture-makers, house contractors, basket-makers, and box-makers are slashing into the wood at a rate that will almost mean its extermination in a few years; and bee-keepers might as well make up their minds they will have to pay constantly advancing prices for their sections from now on; and they can afford to. A little figuring will show that comb honey which nets 10 cts. per lb. to the bee-keeper brings him back $10.00 per thousand on his sections. In other words, he can afford to pay $10.00 per 1000 for sections; and if he sold his honey at 10 cts. per lb. he would not lose a cent. But, fortunately, he will not have to pay more than half that price for next year.

The fearful slaughter that is going on in our country at the present time, of our valuable timbers, is a matter for general alarm. Lumbermen are wasting millions of feet by using great thick circular saws when they might just as well use band saws and save all that waste. The government will have to come in and impose on lumbermen regulations of some sort that will stop this fearful waste. In the mean time, young forest-trees ought to be set out; for what will future generations have to depend on for inside house-furnishings and for the every-day needs of life?

THE DESTRUCTION BY FOREST-FIRES.

An article in the July *Review of Reviews* shows that millions of dollars' worth of timber is burned every year. The fires ususally come twice a year—in the spring and in the fall, when the ground is dry. It has been estimated that 65 per cent of the fires are due to sparks from locomotives. The railroad companies are not only careless in providing suitable spark-arresters in the smoke stacks of their engines, but they allow their section men to burn up old ties in such a way that all the property in the vicinity is endangered. Grass takes fire; the leaves in the forest become ignited, with the result that the whole forest is aflame. Yet this thing has been going on year after year, apparently, with little or no restraint. Various States have laws to protect the forests, but they seem to be weak or else are not enforced. The government of the United States should take a hand in this matter, and see that the railroad companies are put under proper restrictions.

Another cause of forest-fires is the hunters that go roving over the country during the fall. They build campfires, and then these fires, before they are put out, are abandoned, leaving a smouldering mass that is quite liable to set fire to the leaves and rubbish in the vicinity.

I tell you, dear reader, it is high time that the American people were opening their eyes. When Congress convenes, write to your Senator and Representative, urging them to do all they can to protect the forests of our country. Perhaps your efforts will not accomplish much for your *own immediate interests*; but your children and your children's children will need to be protected. The annual destruction by needless and avoidable forest-fires is far greater than the annual cuttings by man. We can't stir up this matter any too soon.

GENERAL CORRESPONDENCE.

PREVENTION OF SWARMING WHEN EXTRACTED HONEY IS PRODUCED.

BY L. STACHELHAUSEN.

In Gleanings for Feb. 15, it is asked how swarming can be prevented if the colony is worked for extracted honey, and whether the forced-swarm method can be used or not. I know a number of plans for this purpose, and which one will be the best depends on the location.

I use very large hives, and they prevent swarming to a great extent, but not under all circumstances. In my locality the bees commence breeding early, and it depends on the condition of the spring at what time the colony will develop to their full strength. As soon as the main honey-flow commences, all danger of swarming is past. This is so in every location if the honey-flow is fast and good, while a slow flow is favorable to swarming. During a poor spring my colonies develop slower, and the queen is increasing egg-laying till the main flow commences; consequently I get no swarms from the large hives, while ten-frame hives may swarm a short time before the honey-flow. During a favorable spring the colonies develop much faster, and sometimes I found that a month or more before the main flow some of the queens laid 4000 eggs daily with a light honey-flow still continuing. Under such circumstances this colony will soon swarm, even if kept in the largest hive. In this case I use artificial increase, and use the plan recommended by Doolittle. Brush or shake colony A on empty combs or foundation on the old stand (for comb honey on starters). The brood-combs without any bees are set on the place of colony B, and this receives a new stand, C. A fertile queen is introduced to B; or if such is not on hand, a ripe queen-cell. Under such circumstances these three colonies will give more surplus honey than two colonies if we had them undivided.

I never extract any unripe honey or any honey from the brood nest, but always give plenty of super room. During a light honey-flow the bees will carry the honey to the supers to make room for the brood. The fast and good honey-flows contract the brood-nest; if not enough, supers are given.

If the colonies are getting of such a strength that swarming is to be expected for some days before the main flow commences, or if the main flow is not so good as to prevent swarming, other plans can be used.

1. If queen-cells are already started we can easily tell when the first cell will be capped; then it is time to manipulate. We remove the hive from the old stand a few steps, and set in its place a hive with empty combs or foundation. From the brood-combs the most of the bees and the queen are brushed or shaken into or in front of this hive with the empty combs. The brood-combs and some of the bees which remain on them are returned into the old hive, and this is set close to the side of the other hive. (It can be set on top or behind it just as well). As this colony will remain weak for some time the first queen, which hatches will destroy the other cells. Now we can unite again. Of course, one of the queens must be removed. If we are willing to remove the virgin queen, it is not necessary to hunt her up. At evening the places of the two colonies are changed. One hour later, when the bees have ceased to fly we change the places again. The old bees, which have entered the hive with the young queen, will kill her during the night in nine cases out of ten. (It is a case of handling hives instead of frames.) The next day this colony is set on top of the forced swarm, a wire cloth between the two, which can be removed six hours later. The whole manipulation is finished in six or seven days.

2. If no queen-cells are started, the first young queen will hatch in ten or twelve days. During this time the colony will get strong, and very probably would send out an after-swarm. Some of the bees will be old enough to do field work, and could work to better advantage in the forced swarm, which is now getting weaker every day. For this reason we remove the colony with the queen-cells in about eight days to

the other side of the swarm, and, if necessary, we brush or shake some of the bees in front of the swarm. As soon as the queen-cells are destroyed we unite again as above.

3. We find the queen of the colony, and set one brood-comb with the adhering bees, but *without* the queen in the hive A, on the old stand; about half of the bees are shaken into this hive. The other brood-combs with the queen are placed in hive B, on the side of hive A. B is hereby weakened so much that the queen-cells are destroyed by the bees in about five or six days. Now we destroy all the queen-cells in hive A, and about half an hour later the two colonies are united as above. This plan takes less time; but the old queen must be found, and a strong swarm on the old stand will do better in honey-gathering than this colony without a queen.

4. A few days ago I received a letter from a bee-keeper in California, in which he gives another plan, which I think is worth experimenting with. With some modifications the plan is as follows: We make a forced swarm as at one and two. On top of this story we set a board with openings closed by double wire screens; the hive with the brood-combs, and enough bees to protect the brood, on top of this. If no ripe queen-cell is on the combs, such a one can be introduced. This hive has its separate alighting-hole. When the young queen is out she will get fertilized over the double screen. Now the two colonies can be united again by removing the board. As they have the same scent this will not be difficult. One of the queens will be killed by the bees. Whether this will always be the old one, as my correspondent hopes, or not, I am not able to tell; but it seems probable to me. This plan can probably be used when comb honey in sections is produced.

In this way the forced-swarm method can be used for extracted honey, and can be done with less trouble than for comb honey, as the old combs can be used. In my locality I do not need such manipulations. Either I get no swarms at all from my large hives, or I increase my colonies some time before the main honey-flow, making three out of two *a la* Doolittle. If more increase is wanted, the following is a good plan in my locality in a favorable spring: Some colonies are divided into small nuclei, giving a ripe queen-cell to every one. From the other colonies forced swarms are made as above. Eight days later all the bees are shaken and brushed to the swarm from the brood-combs. These contain now capped brood only, and are used for strengthening the nuclei. Of course, the queen-cells on them must be destroyed. With such brood-combs containing capped brood a small nucleus can be raised to a strong colony in about two weeks.

I could give the reasons for all these procedures, but our "practical" bee-keepers and editors do not like "theory," and I have learned that our best men can't understand "theory" from lack of preliminary knowledge, so I had to be very prolix and take much space. For this reason we continue to manage our bees according to "prescriptions," and without knowledge. If the conditions are somewhat different, then prescriptions are "no good." Please do not blame me.

Converse, Texas, March 2.

SMOKERS, AND HOW TO HANDLE THEM.

A Chat with the Editor.

BY S. E. MILLER.

Friend Root:—I call you friend because I have heard of you, and seem to know you, for the last eighteen years; for I often heard your name mentioned by your father long before you took hold of the helm of the ship you are now steering. Therefore when I approach you as a friend I trust you will not interpret any thing I may say to or about you as being intended to give offense or offered in a malicious manner. At the same time, I wish to have a talk with you about smokers, and how to handle them; and in dealing with the subject, I will use plain langnage; and if it seems too harsh, you must consider that I'm from Missouri.

When I take the wrapper from GLEANINGS, about the first thing I do is to run through it and look for illustrations. Well, when I first looked over GLEANINGS for May 15, page 432, I came across an illustration of some one holding a smoker *backward.* I thought, "Who in the world holds a smoker in that awkward manner?" and when I found that it was the editor himself, and read his directions for handling a smoker, I must say I was somewhat surprised. I have been wanting to say something about it ever since, but have put it off from time to time; but when I saw one of Dr. Miller's *last* Straws, p. 476, June 1, and the editor's reply, I could no longer resist the temptation of going to the assistance of the other Miller.

Now, Ernest, is it not possible that, when you first commenced using a smoker, you acquired the habit of using it hind side foremost, and have become so accustomed to so using it that you have come to believe it is the proper way? Your reply to Dr. Miller's Straw, about the axis of the arm, etc., may look all right on paper, but it will not do in practice. Your way of using the smoker throws nearly all of the force required to work the bellows on the thumb alone, and in every way it seems to me the most awkward way that one can grasp a smoker. Here is the way I use a Jumbo; and I believe that, if you will call for a vote on it, you will find a great majority of practical bee-keepers use it in practically the same manner. As the nozzle points from you, grasp it with the right hand, the thumb resting on the upper right-hand corner on the side next to you, and the four fingers on the opposite side of the same corner next to the fire-box. When a few light puffs only are needed, use it in this manner; but when you have heavy work to do, let the ball or inside of the hand take the place of the thumb, and work it for all it is worth.

Sometimes when I get in a hurry to raise steam (smoke) I grasp it in this manner with both hands, and make it snort like a steamboat. Then, again, a good sportsman should be able to use his gun either right handed or left handed. Would not the beekeeper be able to grab up a smoker in either hand, and grasp it in the quickest possible manner—any old way, so to speak, and make it do good execution? On page 432 you say, "Stand in front of the hive with the entrance to the left." Now, what I consider the front of a hive is the end or side that the entrance is on. Had you said, stand at the side of the hive with the entrance to the left, and the smoker in the right hand, you would have described the position exactly, only I sometimes change the smoker to the left hand while I use the chisel or hive-opener with the right.

Held in the position that I have described, you have full sweep of the entire hive without in the least cramping the hand or wrist. When I set it down I usually put it where most convenient; but if the bees are inclined to be cross I place it where the smoke will blow over the top of the frames; otherwise I place it where the smoke will blow away from the hive.

About that hook, I think the fellow who wants it on his smoker ought to have to mention it when he orders it. I hooked it into my hands several times, and thought bad things about it, and threatened to take it off; but the first time a brother of mine got hold of it and hooked it into his hand a time or two he took the screwdriver and saved me the trouble. I put it on when I first got it, because I thought it belonged there; but I soon found out that it did not.

This is already longer than I had intended, but I have a few remarks to make about smokers as well as how to use them. When I first read the description of the Jumbo Corneil I decided that I must have one, for the great fault with most of the smokers on the market is that they are not large enough. The Jumbo gives a good strong blast. It does not suck smoke back into the bellows, and get all gummed up with that bane to smokers for which I know no name—an accumulation of semi-liquid soot, or condensed smoke. It is easily started, and no trouble to replenish. After you have it well started, almost any kind of fuel can be used. One can cram in a chunk about as big as his fist, or he can break up small limbs or any thing in the shape of wood that he happens to get hold of. It does not have to be made into such small pieces as are required for the smaller-sized smokers.

While speaking of fuel I will mention that I have never found any thing better than, even if equal to, partially decayed elm wood. This is prepared in suitable-sized pieces, and, thoroughly dried, it burns readily, yet not too fast, and gives vast quantities of smoke that I consider just right. It is not pungent as is the smoke from most other kinds of wood, yet it is very dense, and sufficiently strong for almost any vicious colony.

To those who have had but little experience with smokers, I will say, do not close the smoker too soon after lighting. Allow it to burn a few minutes, with the top or cover thrown back until it gets a good start. In lighting the smoker I usually whittle a few fine shavings unless I happen to find suitable kindling about the saw-table. After lighting the shavings I use coarser stuff, and finally put in the pieces of elm three to four inches long, and from three-fourths to two inches square, or about that size.

I have no doubt that Doolittle's plan of gathering up a few coals where the smoker has been emptied before, applying a few drops of kerosene, and then a match, after which the fuel can be filled in, is the quickest and best way of lighting a smoker. I have used this method in starting the cookstove fire for a long time, and it saves time and trouble. But, to return to Jumbo. I have one fault to find with it, and that is a serious one. That hinged nozzle works all right as long as the smoker is not used; but as soon as it gets gummed up, the top refuses to go down; and a smoker that will not keep its mouth shut is an aggravation; for, instead of the smoke going out at the nozzle, as it should, it comes puffing out all around. I think you could improve on this by making the top flaring so that it would fit down over the stove, something as a funnel would fit over a cup of a little smaller size. I took the top off mine, and with a hammer, and a solid piece of iron to lay it on, I flared it about half way around, leaving that part where the hinge is attached remaining as it was, and I find it quite an improvement. Probably in some climates this sooty accumulation is not so bad, as I have noticed that it seems to be worse in damp weather; but there is always enough of it to make trouble. I think that, if the Jumbo could be made a cold as well as hot blast smoker it would be a great improvement. This might be done by having another tube near the top, and a slide so arranged that, when one tube is open, the other would be closed, though it might not work as well in practice as it does in my mind. I only suggest it.

I think the improvement on the Vesuvius, as suggested by Geo. E. Rozelle, page 594, July 1, will be all right. How would it do to have a hole in the inside cylinder, corresponding with the one in the outside, and have them make a continuous opening when you wish to use it as a hot blast? Then if you wish to convert it into a cold blast, give the inside cylinder about a quarter or half turn, and allow the blast to pass up between the two cylinders.

[You may be a little surprised, but I indorse nearly every thing you have said. When I gave directions for handling the smoker, I meant it to apply to those who desire to use it for one or two light whiffs to bring a colony into subjection; for the average colony requires but very little smoke. I agree with you, when you desire to make a large amount of it, grabbing the smoker in the way you recommend is perfectly proper and right; but why use the strength of a Hercules to smoke the average colony? If you sit down on the hive-cover it is perfectly natural and easy to have the thumb next to the fire-cup, and the fingers on the outside of the bellows, for then the smoker will adjust itself automatically to any position, standing or sitting.

When I spoke about the "front" of the hive, I meant the working side. Perhaps the language was a little unfortunate, but I think most of our readers will understand what I meant.

I quite agree with you that partially decayed elm wood is most excellent, and I have come to prefer it to planer-shavings or excelsior, such as we have used so much in years past. The excelsior does very nicely for lighting the smoker, but it burns out a little too readily. Hard wood is very good, but it burns too slowly, and does not yield enough smoke without too much herculean effort, such as you recommend.

Whoever made the suggestion of using partly burned fuel for restarting a smoker shows he has had experience in the handling and lighting of these implements. I have always noted that partly burned wood will ignite much more readily than fresh stock; but I do not know why I never thought to recommend it with the instructions that go with our smokers.

As to whether we should make the Jumbo smoker both hot and cold blast, you will remember we some little time ago, illustrated an improvement by Mr. George W Brodbeck, which virtually makes a cold-blast smoker out of the standard Jumbo Corneil. Such a smoker can be converted any time into a hot or cold blast by removing or inserting an inner blast-chamber.

I have tried the suggestion of Mr. Rozelle, as given on page 594, but it does not seem to work as well in practice as in theory. To make the Vesuvius both hot and cold blast as you suggest would lead to a little complication. The Brodbeck idea would be simpler and more practicable.

Never hesitate to "wade into" the editor. If I give the impression at any time that I am looking for honeyed words, and for an indorsement of my opinions on every question, I wish to have that impression corrected at once. When GLEANINGS gets to the state where only the views of the editor will be tolerated, it will be a sorry one-sided affair. Our contributors are requested, yes, *urged*, to speak freely what they think. If there is any thing in the Root Co.'s supplies that is not what it should be, be free to criticise. Real criticism of the right sort does more to perfect supplies than praise. Oh, yes! I should have said that the difficulty with the hinge of the Jumbo smoker is due to the fact that one leg of the hinge is a little too long. In the 1904 patterns this will be overcome. It is not a collection of creosote, as you suppose, but it is a question of the adjustment of parts.—ED.]

CAUSE OF BEE-PARALYSIS.

BY E. J. ATCHLEY.

As promised some time ago, I will give the real cause of bee-paralysis. Having been troubled more or less with this disease for about 30 years, and having read every thing that came my way concerning it, and tried every known remedy without success, I set out about five years ago to learn first the true cause, and then get the help of the masses in curing it, if really we need a cure. By close observation, along with my almost every-day work with the bees, I have found out the true cause of paralysis, which is as follows:

It is caused by bees preparing themselves to feed larvæ, and no larvæ to feed, or not enough on which to bestow the amount of chyle, or prepared food, and the nurse-bees will not throw out or deposit this chyle, and soon the mixture of pollen and honey begins to ferment, or make the nurses sick; and it is owing to how much chyle they have prepared as to how bad the bees will be affected. This discovery was made by closely watching the bees that happened to become stimulated out of season, or at times when queens were not laying, such as moving bees in winter, or disturbing them in any way at such times as they ought to be quiet. What puzzled me most was that the Cyprian and Holy Land bees did not take paralysis at all, or very seldom at least, and these bees are such great breeders that the queens begin laying at the least excitement, in season or out of season, and furnish plenty of larvæ on which the bees can use the prepared food, and consequently they are always healthy. Make a colony of Holy Land or Cyprian bees queenless, and they take laying workers in less than 24 hours, or before the nurse-bees begin to suffer with a supply of prepared food.

I have had hundreds of nuclei take paralysis when Italian bees were used, at times when there was an abundance of pollen coming in, and honey sufficient to stimulate brooding, and the Italian bees are not such great brooders, or so quick to take laying workers; hence the bees are diseased, because they have no place to use the chyle, and soon swell up and die.

It is very evident that it is bees that desire brood, and which would be great nurses, that take paralysis worst; but the laying faculties, queens or workers, as the case may be, fail to supply the brood, and colonies are affected just to the extent of prepared food not used, and this is why there is so much difference, and so many stages of this malady.

Changing queens has been recommended a great many times, and in many cases it proved effectual, inasmuch as the new queen would soon supply a different working force, and the new queen perchance a better layer, and furnished more larvæ to be fed. But in cases when the new queen was no better than the one taken out, the matter was not remedied, and paralysis kept on. If there are enough of the old bees left to start up a colony which have not been poisoned by the chyle, when new honey and pollen come in, then the queen is stimulated to a greater degree, and plenty of larvæ are furnished to take up the food prepared by the nurses, and paralysis stops at once. Bees in cellars sometimes get excited from different causes, and the bees at once begin preparing chyle, but the excitement does not last long enough for the queen to begin to lay, and disease begins, and sometimes nearly ruins the colony before brood-rearing begins. I have seen hundreds of Italian nuclei, which were queenless and broodless, make queen-cell stubs all over the pollen portions of their combs, and nearly all the bees swelled up with nurse food, and all soon die, because they had no place to use the food. Salt has been used as a remedy, but I know that it is not worth any thing, as paralysis is not really a disease, but only a condition brought on by each individual colony, more or less, according to their several characteristics, or breeding propensities, out of season. I think that if bees could be placed in cellars without pollen, absolutely, there would never be a single trace of paralysis, no difference how much excitement they received. There is no such thing as paralysis being a catching disease, as there is nothing to catch, and a colony affected can be placed over a healthy one; and where there is brooding going on, and all is well, no more sickness or death from full and bloated stomachs will result.

In 1880 I suggested to A. I. Root that I thought that pollen was the cause of what we then called the nameless bee-disease, and I came pretty close to it, but did not go far enough; as, certainly, if there was no pollen there would be no paralysis. Beekeepers all over the land have just about used all the remedies, to my notion, and this, too, without knowing the cause; and that is, changing queens, placing sick colonies over well ones, etc. After once knowing the true cause, some practical apiarists over the land may be able to figure out a complete remedy. If paralysis were a disease, then the queens and drones would have it too, as they all sleep in the same room, eat at the same table, sip out of the same cup, as it were; but nothing except the workers are affected; and as drones and queens are bees, and it being mature bees that get sick, certainly all would be subject to the same affection; but there is no disease, and no danger of one colony catching it from another. If I had a few foul-broody colonies on which to experiment, and could get a place where there would be no danger of its getting spread to other bees, I would be glad to try my hand in ferreting out its cause also; but as foul brood does not originate in this country, and as there is no condition known under which foul brood could start in this region, I think it would be quite difficult to get at the cause unless one were where its origin is.

Beeville, Tex.

PHACELIA—HOW IT LOOKS.

BY E. F. ZAHLER.

I see several inquiries about phacelia. As I have a nice collection of flowers, also a book, "Wild Flowers of California," I will write you a few lines.

Wild heliotrope, vervenia.—Phacelia tanacetifolia, Benth. Baby-eyes, or waterleaf family.

Stems.—One to three feet high; rough and hairy. *Leaves.*—Much divided. *Flowers.*—Bright violet to blue; in clustered, scorpioid racemes. *Calyx-lobes.*—Linear or linear-spatulate. *Corolla.*—Six lines long; style, two-cleft. *Habit.*—Throughout the western part of the State.

The wild heliotrope is one of the most abundant flowers of mid-spring, especially in the South. It affects the gravelly bank of streams or the sandy soil of mesas, or grows all along the railroad embankments, making great mounds of foliage, thickly sown with the bright violet-blue blossoms; or it may very often be seen clambering up through small shrubs, seeming to seek the support of their stiff branches. It is needless to say that this is not a true heliotrope, but belongs to the closely allied genus *Phacelia*. The specific name, "tanacetifolia," meaning "with tansy-like leaves," is more applicable to the variety *tenuifolia*, Thurber. Among the Spanish Californians it is known as *vervenia*. It is a very important honey-plant.

P. Douglasii, Torr., is a species with lavender corolla, with much the aspect of the baby blue-eyes. This is common in the western part of the State, south of Monterey, and is found sparingly north of that point. There is also—

1. *Large-flowered phacelia*, *P. grandiflora*. This is the largest-flowered of all the phacelia. *Habit.*—From Santa Barbara to San Diego.
2. Another, which resembles the above, is *Phacelia viscida*, wild Canterbury bell.
3. *Phacelia whitlavia*, Gray. *Habit.*—Los Angeles to San Bernardino. It is one of the most charming flowers to be found anywhere.

Another, which also resembles closely the above, is the *Phacelia Parryi*, Torr.

If you wish, from the last four known, more particulars about leaves, flowers, etc., please let me know, as I am only too glad to answer the same.

Napa, Cal., Feb. 1, 1903.

KEEPING BEES UNDER SHEDS IN ARKANSAS.

Advantages of Shedded Apiaries.

BY I. S. ALEXANDER.

When I came here the old shed was here, and it held 40 stands by crowding; when I got it full I put a platform down for the stands as I would for a shed, but no roofing over it; no matter how good they were, I never got more than one super from them. But right in the shed, not ten feet away, I could get 5 to 6 supers and sometimes a super of extracting-frames.

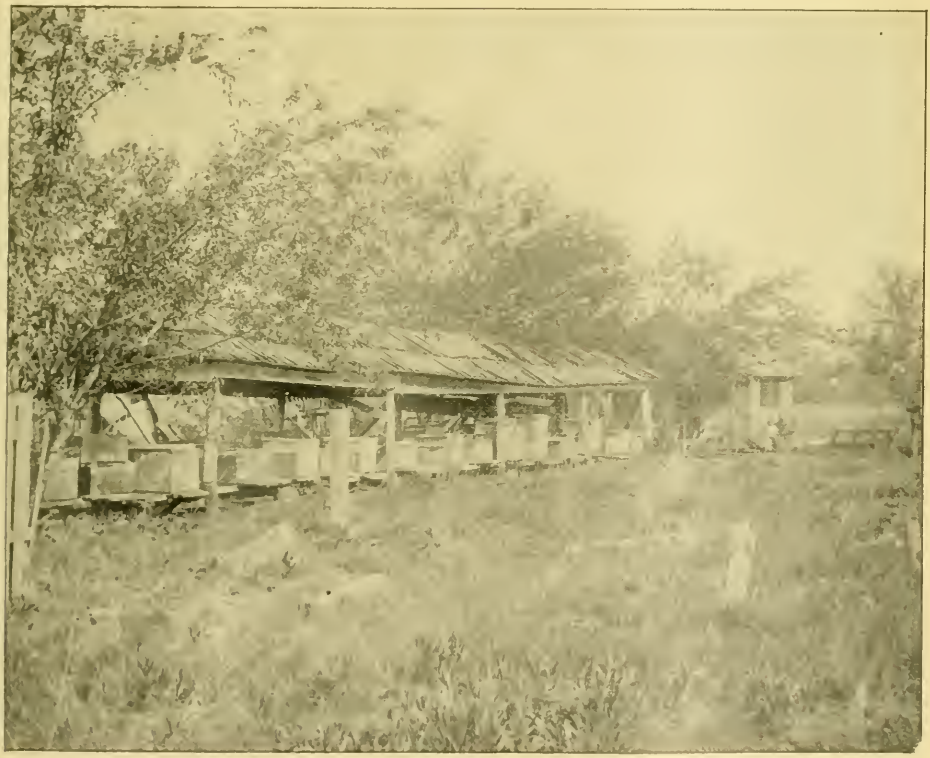
The new shed is about 30 feet in front of the old one. You can't see the workshop, which I wanted to show. The sheds run north and south, and the first (or front) shed was taken from the northeast corner. Our neighbor was working here. He was at my right. The two little girls were at my left, with the dog. The way he was standing was a mistake.

Waldenburg, Ark., July 6.

[In some localities where the sun is hot it is well to have the bees under sheds. In Arizona, California, and in some parts of Texas and in portions of the middle Southern States, and in Cuba, shedded apiaries are used. In the first-mentioned State the sheds are made to run from east to west, so that, as the sun rises, the bees will be constantly in the shade. But I notice that our correspondent says his sheds are arranged from *north* to *south*. In his locality there may be an advantage in that arrangement, because the bees get the full effect of the morning sun by 9 o'clock, and retain it till about 3 in the afternoon. But in hotter climates, it is certainly much better to have them run east and west. There is one advantage in keeping bees under a shed—they are more quiet to handle. A bee will seldom volunteer an attack inside of an inclosure. All know how mad bees will follow one up to a doorway, and stop as soon as the pursued has passed inside.

A. I. Root, when he visited Cuba, noted the fact that the bees were much more quiet under these sheds, and the cut of the Cuban apiary here reproduced will make the reason of this plain. The bees have no occasion for flying inside of the sheds; and the low projecting eves of the roof shut off to a great extent their view of any one inside; and if they do not see him, of course they will not volunteer an attack.

I can not quite understand, however, why our correspondent gets so much more honey under the sheds than outside, unless the intense heat of the sun causes the bees to boil out of the hives and supers during the heat of the day, making them get into the habit of loafing rather than build comb and store honey.—ED.]



ALEXANDER'S BEE-SHED.

THE PROFESSIONAL BEE-KEEPER.

Brood Next to Top-Bars; Chunk Honey.

BY FR. GREINER.

The filbert-bush has of late been mentioned as a honey-plant; in fact, it has been recommended as such in the German bee-periodicals for many years. Dr. Dzierzon has often made much ado over it. It is entirely worthless for bee-forage. I have many large bushes on my farm, some in the bee-yard, but I have never seen a single bee work on the catkins, or the female blossoms, which latter are most inconspicuous. At this writing, March 19, the catkins are full of dust (pollen); and when jarring the bush the pollen will sift out. I fail to understand why the bees are not seen on the filbert when they are frequently found on the tag alder or swamp alder (*Alnus rubra*), the nature of which is similar to the filbert. For bee-forage I would class the alder away ahead of the filbert, but not as good as willow. In other localities the filbert may be visited by bees, but not here. In Germany the woods are full of filbert-bushes. Well do I remember the fun we boys had gathering the nuts, filling all our pockets, etc. They were a treat and a luxury to us. Here we pay 20 cents a pound for them. Why not grow a few? They will do well in shady places.

As to bees forming a circle around their queen, I want to add that, of course, this is not always the case. At times the queen is treated seemingly very disrespectfully—pushed about and run over; but quite frequently the bees behave in such a manner toward her.

Say, Mr. Editor, did anybody inform you before that the *professional bee-keeper* has been called a "humbug" by some disgruntled friend in a certain small farm paper? I can not understand his motive. He continues thus: "Most of the would-be professionals get their living off their farms or in some other way." I wonder if it can not be possible that the gentleman is a little off. I know of some professionals who have not only paid for their homes from the proceeds of their bees, but have been enabled to put out orchards, drain their lands, and make many other improvements. Perhaps the gentleman is of the opinion that a bee-keeper is not a professional bee-keeper unless he lives on a little city lot and in a rented hut. I want to inform him that there are many professionals who live on large and small farms, raise their own fruits and vegetables, and even alfalfa and alsike or

ALEXANDER'S SHEDDED APIARY.—SEE PRECEDING PAGE.

crimson clover. Some even go far enough to sow buckwheat and catnip. That belongs to the business, and makes the man all the more a professional.

It has been intimated that the reason why the bees in Medina did not put brood into the L. frames clear to the top-bar was the elongation of the cells next to the top-bar. What I want to know is, does the foundation you use in horizontally wired frames sag any, so that the cells are elongated? If it does there must be something wrong with the wiring. I have often seen combs, built on narrow starters, sag enough along the upper part of the frame so that drone brood was raised therein.

Were you aware, Mr. Root, that these Texans make a big blow about their producing chunk comb honey? If you don't silence them the predictions are you won't sell many sections in the near future. You know I begin to be very favorably impressed with the idea, and have already decided to flood my town with the article next fall. I have formerly sold all my unfinished honey as chunk honey in tin pans and buckets, at a reduced price, and always found willing buyers. It might be expected that the regular Texas style of chunk honey, with extracted honey poured over it, will take readily also; just think how many basswood-trees might be saved for better use, producing nectar, if they were not needed for section-making.

Absorbents, says GLEANINGS, do not give as good results in Medina as sealed covers. The same seems to be true with our bees near Niagara Falls. Locality makes all the difference. In Ontario Co., absorbents give me best results every time.

Naples, N. Y. F. GREINER.

[This year our bees ran their brood more up to the top-bars than I ever saw them do before. The peculiarity of the season seems to be responsible largely for this. It is not true that the cells next to the top-bars are elongated because of the stretching of the foundation. When there is stretching there is carelessness in wiring. Of course, if the foundation is too thin it will stretch on good wiring.

The scarcity of lumber for making sections may force the bee-keepers into chunk honey more and more as time goes on. But chunk honey must be sold locally among neighbors and friends, or near-by markets. It would hardly "pass muster" in distant markets until those markets have been educated to receive honey of that kind. Consumers have been fooled a good many times into buying chunk honey, getting instead broken pieces of comb and pure glucose. When they get a dose of this kind tiey will not buy again. Chunk honey is open to the objection, like extracted, that it can be adulterated or glucosed, while comb honey in sections is always pure bee honey. Of course glucose can be fed back to fill out comb honey; but it is a slow, expensive job, and will not pay in the end, and the practice will never be carried out.—ED.]

SHED APIARY OF C. H. FLANARY, DRYDEN, VA.—SEE PAGE 725.

Heads of Grain
from different fields

MIGRATORY BEE-KEEPING.

I want to ask a few questions on migratory bee-keeping. I live close to the Kentucky River. It is locked and dammed, and gives perfect water for boating. One month ago, if I could have moved my bees 50 miles up this river it would have been worth 50 lbs. per colony of honey from clover, aside from the basswood and sourwood. My average here this year has been 60 lbs. per colony, spring count. My brother's average in Richmond, 17 miles east, is over 100 lbs. During the last days of May and first days of June he had three inches of rain, which made his flow good; while from the first of May until the 5th of July my rain was less than one inch.

I wish to avoid this by building a boat so I can move up or down the river, as it suits the season. I should also like to prolong the season by going south in the early spring and working north as the season advances. I intend working the Tennessee River as far south as Chattanooga, Tenn. Around Lookout Mountain and the National Park is a good place for bees—plenty of clover, basswood, and poplar; and the honey-flow begins there a month earlier than it does here, while yours is one month later.

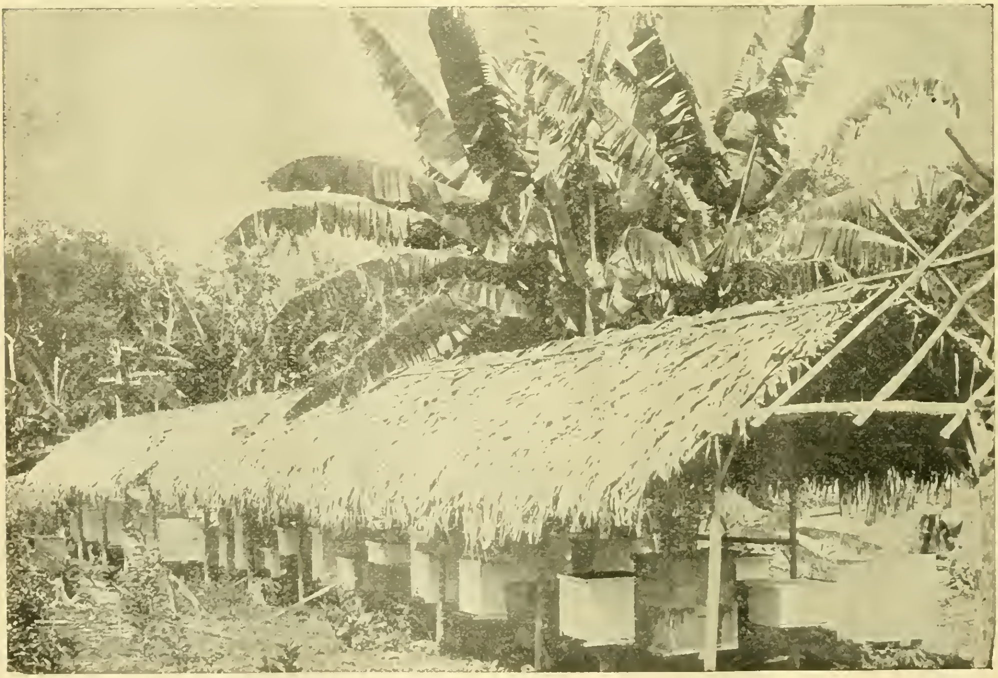
Now for the questions:

1. What time does your honey-flow begin?
2. What time does the basswood flow begin in Wisconsin?
3. Could it be reached along the Mississippi or Wisconsin Rivers?
4. Do you believe it will pay me?

This is the main question, and the one I am banking on.

I do not intend to work the bees from the boat. I aim to move, and set them out on the bank. I intend to make a wire-cloth hood to place on top of each colony to keep them from smothering. The material to build the boat will cost $700. I have 16,000 miles of water before me to gather honey on. I have 100 colonies of bees, all in Rootville hives. I would aim to work 200 colonies, not all from the same place, as this would be crowding them. I would have my brother as a partner.

I see in Gleanings that you are riding an auto. Come down and see me this fall, and I will show you some roads that you can speed it on—2000 miles of macadamized roads right around me; also some good bee country that is never mentioned. I doubt whether it has an equal in the United States. I will give you an idea. Beginning 13 years ago, 1890, 300 lbs. per colony; 1891, 50 lbs.; 1892, 25 lbs.; 1893, 40 lbs.; 1894, nothing; 1895, 25 lbs.; 1896, 10 lbs.; 1897, 250 lbs.; 1898, 150 lbs.; 1899, 300 lbs.;



SHED APIARY IN CUBA. SEE PAGE 719.—*From Munson Line Bulletin.*

1900, 40 lbs.; 1901, nothing; 1902, 110 lbs.; 1903, 60 lbs.; spring good, prospects for fall flow, as we had an inch of rain the 5th. Ring up Uvalde, Texas. This makes 1370 lbs. per colony for 13 years, all extracted, as section honey is foolishness, I think. I never let my bees be idle a minute. As soon as the super is well filled it is taken off and ripened artificially, if it needs ripening; and it needs ripening unless it weighs 12 lbs. to the gallon.

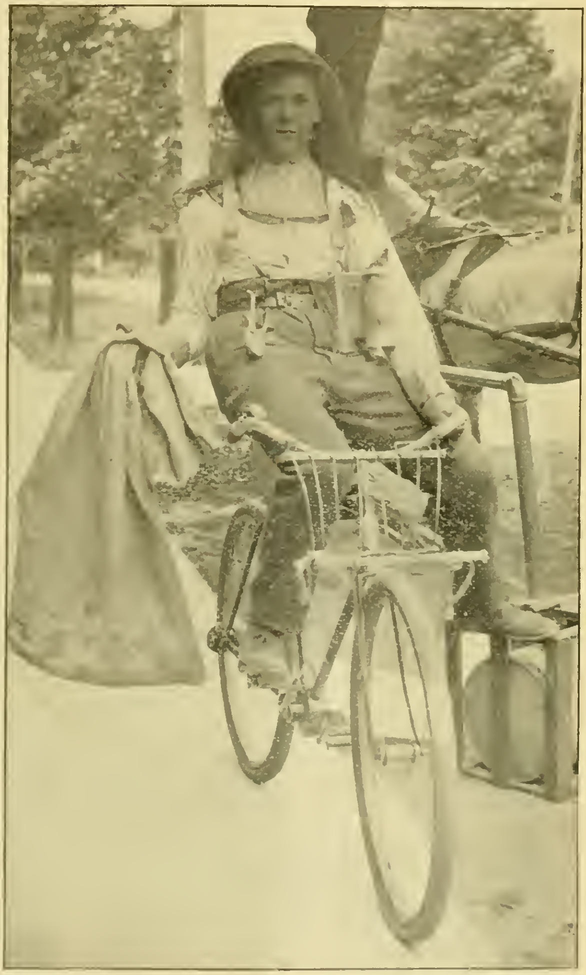
VIRGIL WEAVER.

Buckeye, Ky., July 13.

[I am not able to give you much definite information on this subject. The experiment was tried once by putting bees on a raft, by C. O. Perrine, something over 20 years ago; but it did not prove to be a success. Too many bees were lost on the water. The expense of moving was considerable, and the whole plan was abandoned as a failure. But your plan differs a little in having a boat to accommodate the bees; and if you landed them every time you made a stop you would do away with the losses on the water, probably. It *seems*, at first thought, as if the plan ought to work. If you can build a boat at the price you mention, and in such a way that it can be converted to other uses in case it is a failure for the purpose you design it, so that you would not lose the price of the boat, it might be well to try the experiment. But you would have to pay a tug for towing you from one point to another.

But a better and perhaps a cheaper plan would be a gasoline-launch engine with propeller to drive you from point to point. Perhaps that was contemplated in your estimate of $700.

The one difficulty (and I think the chief one) with the plan is that the season advances so rapidly that it is questionable whether you could move fast enough to keep up. White clover opens up with us somewhere about the middle or last of June, and usually lasts two weeks, and sometimes a month. Basswood usually comes on before clover ceases. But about the first of July our season is often entirely closed. If we could move the bees by express (a boat would be too slow) to Northern Michigan we might be able to catch the later honey-flow. My own personal opinion is, the season would come on more rapidly than you could move your boat. You probably could not go much more than three or four miles an hour unless you had a tug to haul you, and that would be expensive. In order to catch the flow as it opened up from point to point northward, you ought to have the wings of the wind. An express train would not be any too fast. A failure of the whole scheme, if it came at all, would be because of your inability to move fast enough when you desired to change your bee-range. A difference of 50 miles would be hardly perceptible: You would probably have to go 300 or 400. If your bees were doing well at one range you could hardly afford to move them until they had pretty well finished up, so you might have to spend a week or ten days in any locality before the season would be over there; and by the time you could get up to your new range the flow would be too nearly gone.



HOW STRAY RUNAWAY SWARMS ARE CAUGHT, BAGGED, AND BROUGHT HOME ON A BICYCLE AT THE HOME OF THE HONEY-BEES.
SEE EDITORIALS.

If any of our readers can offer us any advice in this matter we should be glad to hear from them. I can only say this: I should like to have our correspondent try the experiment; but we do not wish him to sink money for the edification of the rest of us.—Ed.]

RED-CLOVER BEES.

Adjoining my apiary here is considerable of the large red clover, and I notice quite a few bees gathering nectar from it. I do not know what colonies the bees are from, as I have about 50 at my home apiary among which are two queens (red-clover) which you sent me, and I am somewhat inclined to think these are the ones sending out the workers referred to.

The question is, does your red-clover stock work freely on the large clover? I have five or six different strains together, and wish to locate the proper colonies.

Akron, O. A. J. Halter.

[Our long-tongued bees of red-clover strain work better on red clover than the average red-clover Italians; but all Italians work on red clover to some extent; but no bee works on this plant as well as it does on white clover or alsike having shorter tubes. Our red-clover strain will gather considerable honey from red clover, but nothing like the amount they will take from white clover of equal area. We desire to make a frank clear statement, so that you will not be deceived as to what the bees actually do.—Ed.]

STORES FOR WINTER; WINTER-COVERS, ETC.

Will a colony want the whole of the stores they make in the bottom chamber of their hive, said hive having eight frames perfectly full? or would you remove the two end ones? What material is best to make covers for top of brood-chamber for winter protection? Will it pay to winter a thir swarm on a box hive, hived the last of June

C. Kershaw.

Forest, Ont., July 19.

[illegible]ral rule it is not advisable to t[illegible] from the brood-nest. A good [illegible] will depend on the locality, and on whether you expect a fall flow after the main flow of the summer. But if you are not sure of any honey coming in after the main crop, better leave the brood-nest untouched. Indeed, it may be advisable for you to feed them. For a roof you can use paper, cloth, or a tarred felting; the cover, of ordinary boards. If no special covering

A. I. AND HUBER ROOT READY TO START FROM MEDINA, OHIO, ON THAT THOUSAND-MILE TRIP AMONG BEE-KEEPERS OF OHIO AND MICHIGAN.—SEE EDITORIALS.

s used, there is no better material than ine, properly tongued and grooved, to shed water.

A third swarm in a box hive will winter well enough if stimulated by feeding; but we would advise putting it in the cellar, or, etter still, transfer it to a movable-frame ive. Then you can see what condition it s in.—Ed.]

NEAT LITTLE SHED APIARY; A. I. ROOT'S HOME TALKS.

In my bee-shed, taken June 27, 1903, myself and Mr. Grover are sitting on a hive. I sit on the floor at the shed. I have a fine place to keep my bees—dry and grassy. It drains off in a few minutes when it rains. Our bees are doing well, and we have had a fine season so far. If the season lasts we shall get a good crop of honey, [illegible] white clover. Of course, we ha[illegible] of honey-producing plants, such as [illegible] basswood, locust, sourwood, and poplar.

I delight in A. I. Root's departments. I should like to hear him give us a little lecture on the scriptures. We need more such men as Mr. Root to stand up and talk for the Master; and we should be thankful for Mr. Root's talks along this line.

Dryden, Va. C. H. Flanary.

A ROBBER-FLY THAT IS NOT WHOLLY AN ENEMY.

I have sent you a specimen of some kind of insect which is a bee-catcher. They do not seem very numerous. The first one I saw had a drone, and was on a willow-leaf on the branch, making his meal on the drone. To-day I caught this one alive. They are so wonderfully strong, and especially so in the legs, that they catch a bee by alighting on its back, clasping it in its grasp, and by its long stout legs it stretches the bee's stinging part right out, and then pushes its hard bill right down into the bee's body, in that hard place between its wings. The worker it had to-day was heavily loaded with bee-bread on its legs. It seems they catch the bees when coming in loaded. F. P. Cook.

Maud, W. Va., June 5, 1903.

[Prof. Benton, to whom these specimens were sent, replies:]

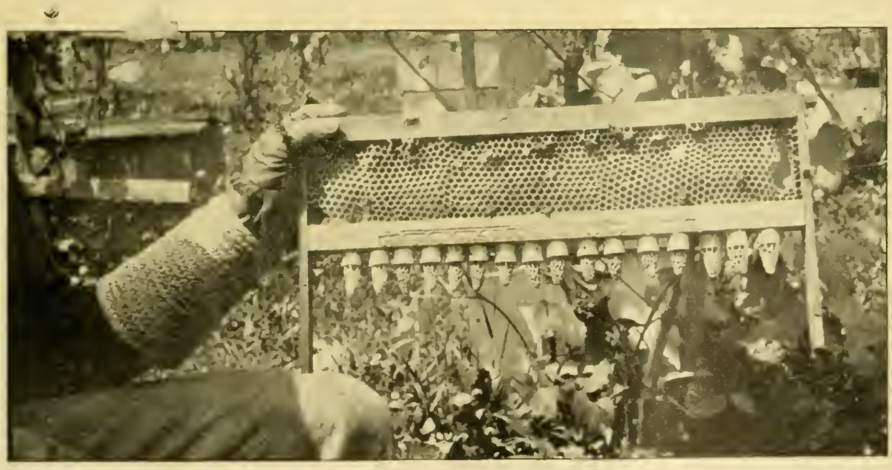
Mr. Root:—I return herewith a letter received from you some days ago, which awaited the arrival of specimens and their determination. The robber-flies which were found by Mr. Frank P. Cook, catching his bees, are known as *Dasyllis sacrator*. They belong to a numerous group of predaceous flies; and although they may frequently attack honey-bees they also get a good many injurious insects, so that they may be accounted not wholly a pest themselves. It does not seem practicable to destroy them or prevent their ravages wholly, the only way being to frighten them when they are noticed about the apiary; but they will be sure to come back another day after more bees. The losses on this score are not very great. It is also impossible to get at their breeding-places, which are probably in the ground about the roots of decaying vegetation. Frank Benton.

Washington, D. C., July 25, 1903.

RED-CLOVER BEES OF THE MOORE STRAIN.

I saw my bees getting honey out of red clover, and they did not pick out the small blossoms, but worked them as they came to them. The time I noticed them on red clover was when there was plenty of white clover in bloom. When they could not reach the honey easily they would shove their heads down into the little blossoms, and then stay there until I was confident they got at least a good part of the honey. My bees haven't only long tongues, but they have a determination back of their tongues to get the honey. W. T. Davison.

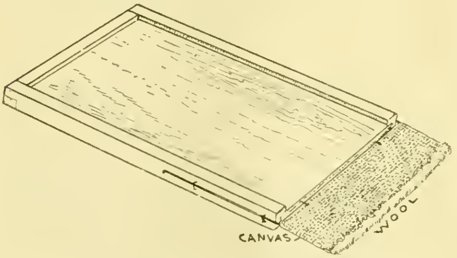
Velpen, Ind., July 26, 1903.



QUEEN-CELLS REARED FROM WOODEN CELL CUPS.—SEE EDITORIALS.

A CANVAS ALIGHTING-BOARD; STARTERS VS. FULL SHEETS IN NEW MEXICO.

I take the liberty of sending you a picture of a part of my apiary, and a diagram of my new adjustable alighting-board (or canvas). This board is made of staples, wire, and some good strong cotton cloth, leaving at one end a hem through which to run the wire. This wire is loosely fastened to either side of the bottom-board with small staples, one at the front and the other about 7 inches from the front. The edge of the canvas is tacked to a strip of wood ⅜ × 1, which is tacked to the lower side of the bottom board just under the entrance.



The wire should be No. 8 galvanized, because the common wire would rust the canvas. This can be bent down at any angle desired to suit the fancy, and it can be attached to any short alighting-board to extend it any distance desired. For a party who must move his bees it can not be beaten, as they can be slid back against the alighting-board out of the way; and after the hive is placed on the stand, all one has to do is to pass along the front of the hives and pull them out.

The average canvas is almost too heavy. I use a good heavy cotton cloth, and it would be a good plan to have different cottons where the hives are close, to keep from such a heavy loss of queens.

I should like to see how Mr. F. P. Clare (p. 386) and Mr. Strangway would succeed with their starters in the brood-nest. I believe they would be thoroughly disgusted in this locality, and wish they had never seen starters. It matters not what season of the year, nor under what conditions, it seems to be a craze with the bees to build a third or a half drone comb, and I am sure I have followed the writings of some of the best bee-men who write for GLEANINGS; but starters will not work. It is the greatest source of trouble to me, so I use full sheets of foundation, and wire it well, and keep the hive well protected from the sun's rays, and have no trouble from sagging foundation. I wonder if Mr. Strangway knows that the raising of several pounds of drone brood consumes a great deal of the nurse bees' time, and also considerable honey. I prefer the full sheets of medium brood in the brood-nest, and get the queen to laying to her full capacity in three or four days, and get them ready for business, as it is honey I want; and if they dally along building comb, you are losing honey, which will pay for the extra cost, or the few cents which the full sheets of foundation cost. I use starters for the section boxes of the lightest super foundation that I can get. I did use full sheets; but it is too thick, and it makes a tough center-piece, which I do not like. Of course, it takes a little more time, but makes nicer honey to eat. If I could get a thinner sheet that they would not tear down I would do so. H. E. JAYNES.

San Marcial, N. M., June 1.

[The canvas or muslin alighting-board, such as you outline and describe, seems to be quite a good thing; but its life would probably be only a couple of years unless it were treated with linseed oil. There is one thing you have not mentioned in connection with this device. It can be shoved up out of the way of the lawn-mower in cutting down grass.—ED.]

CRACKED FOUR RIBS, AND HURT INTERNALLY BY A FALL WHILE GETTING A SWARM FROM A TREE.

I had the misfortune to fall from a tree while hiving a swarm of bees, and crack four ribs, and was hurt internally, but am so as to be about again. I never saw so much swarming in my life. Bees are gathering lots of honey up to date; have second super on some colonies. Clover is still in bloom, and basswood just commenced to blossom—that is, in the town of Bennington, where I live; but in some places they say they are not doing so well.

IRA C. MATTESON.

Cowesville, N. Y., July 14.

THE QUEEN'S PREFERENCE FOR NEW COMBS.

Mr. A. Heinkel is mistaken in thinking that those old combs mentioned on page 443 were all solid pollen. I do not think they were more than three-fourths full, if as much, pollen and honey. The rest of the cells were quite empty, but the queen filled every available cell in the newly drawn comb before she paid any attention to old combs.

REGINALD C. HOLLE.

Alma, Brown's Town, Jamaica, B. W. I.

COLONY MANIPULATION — QUESTIONS CONCERNING.

If the brood-chamber and contents of a colony be placed over a bee-escape board on a hive (on same stand) containing frames or combs, would the bees going down, and making this lower hive a storehouse for honey, etc., be likely to produce fertile workers? and for how many weeks do you think the upper brood-chamber with the queen would continue to produce young bees, provided they had plenty of honey, the escape proper being covered with excluding metal to restrain the queen? Do you think that wire cloth, instead of the board, would make the escaping bees less likely to raise fertile workers? Would the presence of a caged queen in a broodless colony prevent production of fertile workers?

Is it advisable to use a covering between the hive or super and the cover proper of the Danzenbaker hive? and if so, of what material and under what conditions?

Should the super be used in connection with the hive for wintering? What are the advantages and the disadvantages?

Would a common drygoods box of inch stuff fitting down over a hive, with sufficient space all round for the introduction of chaff, straw, or other non-conducting material between, prove a good and sufficient winter protection for bees?

My hives now face north because the prevailing severe summer winds are from the south and southwest, and the bees can better effect their exit and entrance in the lee of the hive. Should the hives be faced south for wintering? J. ALBERT SMITH.

Lincoln, Kansas, July 18.

[But why put a colony above the escape-board? I can see no possible advantage in such a procedure. Whether fertile workers will be started will depend somewhat on what kind of bees are used. If they are Eastern races, such as the Holy Lands or Cyprians, fertile workers might be developed below. If they are Italians, the probabilities are that the bees would dwindle down into a discouraged condition. The presence of the wire cloth in place of the board would not make very much difference with the result either way.

When a queen is caged in a hive, the colony is to all intents and purposes queenless, and the bees behave just as if she were not in the hive at all.

I would not advise using a super filled with sections in connection with the hive for wintering. If the sections be removed, and packing-material be poured in the super on top of the frames, the results may be very beneficial. In climates where the winters are not too severe, a super filled with packing-material is indeed a very great help.

A drygoods-box as a winter-case will give excellent results providing the roof or top is tight enough to shed water. If it is not, wet packing-material is worse than nothing.—ED.]

BIRDS AND BEE-STINGS.

In GLEANINGS for Oct. 1, 1896, page 715, is an article of mine dealing with the above subject; and as your footnote thereto is very brief, and no comment has since been made upon my statements, I am afraid they have been received with the proverbial "grain of salt." I may say that, on several occasions since then, I have made post-mortem examinations on these birds, with corroborative results; and now a bee-keeper residing about 25 miles from here reports an experience even more incredible than mine. I am inclosing his letter for your perusal, which kindly read in connection with mine mentioned above. I am also sending in one of your mailing-blocks portions of two stomachs taken from these birds, showing scores of stings imbedded in them. Just imagine 97 stings, with their accompanying poison, piercing the alimentary canal of one bird, and that bird apparently suffering no inconvenience therefrom! The scientific name of this bird is *Oriolus viridis*, and, fortunately for us, they are not at all numerous.

H. L. JONES.

Goodna, Australia, April 11, 1903.

[The stomachs sent were filled with stings. No one has or could question the evidence, for we have had from time to time other corroborative proofs. Here is the letter referred to above.—ED.]

Dear Sir:—With reference to the green orioles as bee-eaters, I am forwarding you two gizzards out of three, taken from two green orioles that I shot to-day. The third one had 16 stings in it. I thought it was not worth sending as compared with the two. I am very much obliged for the information that these birds eat bees. They are naturally fruit-eaters. I think it might be worth our while to make it as widely known as possible to bee-keepers.

These gizzards, when taken out of the birds, were of a bright yellow color, so that the stings were very plain to be seen. I counted 97 in one of them. It seemed to me a most extraordinary state of affairs.

W. R. CRUST.

Enoggera, Australia, Oct. 2, 1902.

HOW BEES PACK POLLEN.

I note from the new edition of the A B C that you still cling to the old idea that bees pack the pollen in the cells by utilizing their heads as a battering-ram; but I can assure you they do nothing of the kind. The facts are, that, as soon as a field-bee has kicked off the pellets into a cell, another bee comes along and distributes the pollen slowly and evenly with the aid of its tongue—simply plastering it as it were. I have watched them scores of times at this interesting occupation; and any one who possesses an observatory hive can do likewise and prove the facts himself. When bees become crowded for room in an observatory hive they will frequently build some cells on the glass; and as the glass will thus form one side of the cells, many interesting events connected with the internal arrangement of the hive can be observed. There is no doubt about it, friend Root, that the tongue is the only implement used in packing the pollen so neatly, and you can safely make a note of it for the next revision of that magnificent work, the A B C of Bee Culture. H. L. Jones.

Goodna, Australia, April 11.

WHY HONEY IN SMALL DOSES MAY BE HURTFUL WHEN IN LARGE DOSES IT IS BENEFICIAL; AN INTERESTING AND POSSIBLE SOLUTION OF SOME OF THE QUEER PHENOMENA OF DIGESTION.

I am going to explain why your lemonade did not hurt you. Several years ago I was keeping bees at my wife's father's farm. He kept bees also. and loved honey, but said it hurt him so he could not eat it. I asked him *how* it hurt him. He said it soured in his stomach, and caused bloating. I asked him how much he ate. He said, "About a tablespoonful." I told him his stomach was heavily charged with acid, and when he ate only a spoonful of honey it was overcome by the acid, and this turned to acid also; but I said that, if he would eat a sufficient quantity to overcome the acid, it would not hurt him. He scoffed at the idea; but when I persuaded him to eat all he wanted, there was no bad effect whatever from it; and as long as he ate enough to overcome the acid it never hurt him afterward.

In your case you carried an excess of alkali; and when you drank a glass of lemonade, and were satisfied it would hurt you, you were not disappointed, for the alkali soon overpowered the acid, and thus turned *that* to alkali, which added just that much more to your misery and discomfort. But just as soon as you drank the lemonade in sufficient quantity to overcome the alkali, and turn it to acid, then the machine was reversed, so to speak, and thus you received *special* benefit from the same acid that was working the injury, because it was kept under subjection by the superior quantity of alkali, and not because you *thought* the lemonade would hurt you, and it *did*, or that you *thought* it would not and it did not. Think of it in this light, and see if you do not see it as it is.

Elias Fox.

Hillsboro, Wis., July 9, 1903.

[I do not know much about the presence of alkali or acid in the stomach; but if either does exist in undue proportions at one time and another under some conditions, then your solution of the apparent paradox by overpowering an alkali with an overdose of acid, or the reverse, is correct. As a general rule in my case, a small amount of any one thing is not hurtful, while a large quantity is decidedly so. Perhaps when I become older I shall come to know something of what it is to have an excess of alkali or an excess of acid. This is a very interesting theme, and I hope our brethren of the medical profession, as well as the professors of anatomy and hygiene in our colleges, will give us something further on this subject. Among our bee-keeping fraternity we have professional men—men who have taken up bees as a pastime, and yet who are away up in the science of medicine and anatomy.—Ed.]

A RED-CLOVER QUEEN THAT BROUGHT IN 110 LBS. OF HONEY IN TEN DAYS.

I see in Gleanings that you have a queen that you marked $50, judging her by her works. Now, I have a red-clover queen that I received as a premium for Gleanings, whose bees brought in 110 lbs. of red-raspberry honey in ten days as follows:

May 28. 10 lbs ; May 29, cold, 7; May 30, cold. 5; May 31. cold. 8; June 1, 13; June 2, 11; June 3, 16; June 4, 18; June 5, 11; June 6, 11. Total, 110 lbs.

It has rained most of the time in June. Can you go ahead of such a queen?

R. D. Horton.

Blossburg, Pa., June 30.

Bee-keepers' Picnic.

The Ontario County bee-keepers will hold a picnic Aug. 29 at Willowgrove, situated on the shores of the beautiful Canndaigua Lake To make a round trip on this lake is well worth the time and money it costs. We cordially invite all the bee keepers living within easy reach of Willowgrove to attend. Steamboats leave Canadaigua and Woodville regularly.

F. Greiner,
Sec. Ont. Co., N. Y., B. K. Association.

FARMERS' NATIONAL CONGRESS.

Arrangements are well under way for the 24th annual meeting of the National Farmers' Congress, at Niagara Falls, beginning Sept. 22. To judge from the efforts put forth by the officers, an instructive and interesting session may be expected. President Flanders informs us that the following gentlemen have accepted invitations to deliver addresses: Maj. G. D. Purse, Savannah, Ga., "Sugar Supply in the United States." Hon. Timothy L. Woodruff, Brooklyn, "Agricultural Conditions Understood to Exist in our Insular Possessions, and the Possibilities in Their Development." O. P. Austin, chief of the Bureau of Statistics, Washington, D C., "Farm Products in the Markets of the World " Dr. D. E Salmon, Washington, D. C., "Infectious and Contagious Diseases of Farm Animals and their Effect on American Agriculture." Prof. T. M. Webster, Urbana, Ill. "Diseases and Insect Pests of Plants and their Effect on American Agriculture." James Wood, Mt Kisco, N. Y., "How Can We Enlarge Our Foreign Markets for Farm Products?" Aaron Jones, South Bend, Ind., "Extension of the Facilities of our Mail System "

Gov. Odell will deliver the address of welcome. and the response will be made by Hon. Harvie Jordan, Monticello, Ga , first vice-president of the congress.

Twenty-four years this national body has co-operated with the other organizations of the United States in the betterment of agriculture, and in making the life of the farmer more pleasant, more profitable, and, if possible, more honorable. You will notice by the subjects chosen, and the speakers assigned, that this organization is not an institute, but deals with the relations of the agriculturists to the other professions.

The delegates are commissioned by the governors of the several States, and any farmer is eligible to appointment

For information in regard to appointment as delegates, write to John M. Stahl, Secretary, 4328 Langley Avenue, Chicago, Illinois.

Remember the date, September 22 to October 10. 1903.

Excursion rates on all railroads, on the certificate plan. J. H. Reynolds, Treasurer.

OUR HOMES,

BY A. I. ROOT.

So God created man in his own image in the image of God created he him.—GEN. 1: 27.

God is a creator; he is *the* creator. He has been called the great Architect of the universe; and when the human mind expands and gets a faint glimpse of all there is to be learned and discovered in this vast universe, I do not wonder that we get "rattled," and think there must be more than one God, or that his great task must be divided up in some way, as men divide up duties and great responsibilities.

Well, if God is a creator, and man is made in his own image, then man must be a creator also; and one who looks abroad and sees what man is doing just now may well stand appalled, and lost in wonder at what is going on.

This thought brings me to my present theme, the wonderful—nay, *startling*—things that little humanity is just now doing as a creator, or, if you choose, in following in the footsteps of God as a creator. The astronomer Kepler many years ago said it was a delight to him to be permitted to think the thoughts God had thought, and follow in the footsteps where God had trodden.

A few days ago I visited the Olds automobile works at Lansing, Mich. I shall not attempt to give you the dimensions of their great buildings, but will only say that they are just now putting walls up around what looks like great fields, and these "fields" are to be roofed over to make room for more men and machinery. Between 500 and 600 men are now employed, and about 20 new machines are turned out every day.

Like the Waltham watches of old, every part is made so accurately to gauge that any part fits any machine; even the little tapering pins of tempered polished steel are just tight enough, and not too tight (that the machine may all be taken apart when necessary), no matter in what machine they may be placed. Long rows of expensive machinery, all making the same thing, are found in room after room. In one great apartment the engines are set up and tested. When we were there, there were 44 side by side, humming away almost like mad. I presume they are run here at their highest speed, and made to show up any defect if there is any.

The thing that concerned me most was a vast apartment called "The Hospital," a place where "sick machines" are "diagnosed" and cured. I could not keep the thought out of my mind, nor help wondering, if some time in the great future our doctors will not learn how to "take apart" the human frame and form, and see *exactly* what the matter is, and then put in a new piece or repair the old one, as skillfully and securely as the men and boys do here. On this big floor there are all the time a dozen or more machines. Some are almost brand-new, while others are old from use, and, *may be*, hard usage. Sometimes it is a very laborious task to get at a trifling breakdown.

After we left, and were 40 miles away, we found our water-pump did not work. It took only two or three hours to get back to the factory. The machine had to be nearly all taken down to get at the mischief and put a new piece in place of the broken one. While improvements are being made constantly, the company are striving very hard to have each change so made that the improved piece will fit exactly all the old machines when repairs are needed. If you think of it a little you will find this is often an exceedingly difficult matter.

I love machinery, and have always loved it from a child; but just now I love humanity more. The bright young men in the prime of life, skilled mechanics, were a study to me. I had permission from the office to go everywhere, even when "No Admittance" was over the doors, and to ask questions about the work. Our job was a pretty hard one, and a case rather unusual. As we were in a great hurry to get off, two young men went at it together. I wondered at the skill and rapidity with which they took out the screws, untwisted the wires, removed the bolts, etc. And then I watched to see how they would avoid losing any of these little and delicate parts. The screws and nuts were all dumped in a box, for all the screws, nuts, etc., are made to an exact gauge, and any one of the same kind fits anywhere. When the break was exposed to view, one of their most skillful experts was called. He was a quiet, careful, gray-headed man. One of the boys said, "He will make it come if any man in the shop can; he works slowly and carefully, but he always succeeds."

I wonder if those boys all stop to think how much better this is than to rush ahead, break tools, and perhaps get mad, and swear. I heard some bad words at the factory, but not many.

It may be well to explain that a steel screw was broken off in the end of the engine-shaft. Of course, the broken piece had to be removed before the new screw could be put in. A drill was selected as large as could be used without cutting through the broken screw. After drilling perhaps half an inch, a tapering square punch of tempered steel was driven into the hole just drilled. This punch was of such a size that the sharp square corners held securely in the broken screw. A wrench was then applied to the punch, and the broken part came out without injury to the shaft.

Every little while a job was finished, or supposed to be finished. Then the workman started the machine, and with his black and greasy hands full of tools, often with his hair flying in the wind, the machine was run out of the wide door, and tested on the race-course. The works are on the old Lansing fairgrounds, and this old race-course is just the place for testing machines. At almost every hour in the day one or more machines are flying around the track. Each man, evidently, takes pride in being able to make his machine do its best; and all together a sight of that busy workshop, and these new creations that seem almost like a thing of life, stirred my soul as it has not often been stirred. Let me digress a moment.

Man first went on foot; but he soon learned to appreciate a "ride" of some kind. If I am right, mules and asses, perhaps also camels, were one of the first inventions to improve on going on foot. Later, boats were invented, and perhaps wagons. Later still, horses were found to be the thing for speed, and then came buggies and carriages; but for long ages no invention of man could go on common roads faster than a horse. The wheel came, and is here yet (thank God); but this new thing, for travel, leaves *all* behind. Just now it is in the embryo; and not only the machine but the people. *The whole world* is rubbing its eyes and waking up, and slowly (shall I say sluggishly?) making room for it. I don't know who invented this machine. The credit probably belongs to a great many minds, but I am inclined to think the inventor, and the skilled mechanics who make the machines, have never recognized how nearly they have been following the works of God in this wonderful creation.

Let us see how much there is about it that is human-like. In the very center of it there is a pulsating, beating heart, the engine. There is a circulation to keep the machinery cool, but it is water instead of blood. It breathes air and consumes oxygen, just as we do. There are nerves of steel (piano wire) that run from every point of its construction up to the hands and feet of the operator. It has two big eyes (lamps) to see to run by night. It must have water, just about as much and as often as you give it to a horse. It doesn't need oats, it is true; but it needs gasoline (another of God's late and wonderful gifts), and this is consumed in the very "intestines" of the machine, to give mechanical force, just as the oats and corn give mechanical force. It gets hot when doing hard work, just as the horse or man gets heated by extra exertion. To do its best work it must have faithful and intelligent care, like the horse. If man is made in the image of God, is it so very strange that he has (even unwittingly) trodden in the footsteps of his Creator in making a machine that is so nearly human in its makeup? It lacks brains, it is true; but its maker is its brains, and holds its wonderful power at the tips of his fingers—and toes.

It was nearing noon time, and I felt the need of my accustomed nap. I found a quiet boarding-house, and a pretty young waiting-girl opened the door of a nice little room that I should call a study, judging from the books and papers, and told me I could rest on a pretty clean lounge until dinner was ready. I not only thanked my young friend, but I thanked God for such pretty and comfortable places and such people. Yes, I thanked God for *womankind* as well as for mankind. My couch was before an open window; this window was close to the race-course. As I dropped into oblivion, car after car whizzed past my window with its driver covered with black grease, and his hair flying in the wind, as I have told you. He forgot his hat and all else in his devotion to his machine. I was just thinking I loved him with all his dirty hands and greasy overalls, when the young girl at *her* work trilled out a little song that came in through the open window. Do you wonder that those thrills of joy and praise to God came over me again and again?*

I have been accused, you know, of writing up things and places in rosy colors, saying nothing about the "thorns;" but I am now going to speak of something worse than thorns right in and about that automobile works. I may have been exalting humanity a little too much. When I asked how much I owed for my very good dinner, and the use of that neat little room, the reply was, "Twenty cents." I tried to have them take 25, but was told 20 was the regular price. On my way back to the shops one of the men asked me how I liked their boarding-house, and then said something like this:

"Mr. Root, a widow has charge of the place, and she is trying hard to make a living, and she would come out all right if it weren't for the boys and men who slip off and don't pay their board-bills. There is quite a lot of help here that is going and coming. They stay a week or two weeks, and put her off with some good excuse, and then skip out."

I replied: "Why, is it possible you have people, those who call themselves *men*, who would thus impose on a weak woman who has lost her companion and natural protector? Are there those who are so lost to shame, strong men who would see this woman purchase food and then work hard to prepare it in such a wholesome and tempting way, and then sneak off without paying her?"

Can it be, friends, we have such men and *boys?* If so, *they* are not in God's image by a long sight. They are of the Devil's work

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*I have told you about thanking God for his giving me a human life to live. As I sank to slumber I breathed that prayer again, and thanked God that, in his infinite love, he had given me a place, even while I am old and gray-headed, among the busy boys and girls of our land. And then I fell to wondering how it was possible that any human being should get weary of life — this wonderful gift. Yes, within the last few days two millionaires, I am told, have committed suicide. How is this possible for one who can get a glimpse of this great teeming universe, with its wondrous machinery and wonderful possibilities? Surely this can not happen to any soul that has once had even a glimpse of Christ Jesus and of God the Father, and of their *wonderful love* to humanity.

and workmanship, and the sooner they are consigned to his department and workshop the better, if they propose to continue in this way.

Now, if there is one who reads these pages who has not paid his board-bill, especially if it be due to some hard-working woman, will he not go this minute and settle it up? If you are a *man*, God made you in his image. Will you put him and all humanity to shame? My friend explained to me that it was a hard thing for the widow to require all these boys to pay in advance, but he feared she would have to do it.

Our machine was done. I climbed into the seat beside the man who put it up, and round it whizzed on the trial trip. When away over on the side of the race-course furthest from the factory, when every thing so far as I could see was all right, he jerked out an ejaculation, and stopped the machine so suddenly it nearly pitched me over the dashboard. Somebody had forgotten to fasten one of the wheels securely. The wrench he wanted was over at the shop; but he called to a comrade who was whizzing past, and the wrench was at hand in almost no time.

Besides the race-course test they have a steep incline on which the power to ascend a grade is tested. If a machine will go over this it is called up to standard in power.

When I first looked at that incline it seemed to me that no machine could go up it. But up they went aflying, and down again on the other side. Once in a while, however, a machine would be found deficient (we might say in wind); and when almost at the top it would have to back down again and go back to the hospital to have its wind mended. Oh if we could take weak and crippled human beings, and give them life and strength as they do these machines, what a grand thing it would be! Let me digress again a little right here:

The great Father above gave horses to humanity as beasts of burden. We do not know just what the horse was like when it came from the hand of God; but we do know that humanity, created in God's own image, grasped hold of the horse, as it were, and proceeded to fashion it according to his needs. See the trim light-footed racer; then contrast it with the heavy-limbed thickset draft horse. And man did this fashioning. Now, it occurs to me that man has not only been able to fashion the bones and muscles, but I think he has had much to do with shaping the intelligence of the horse.

Much has been said and written about frightening horses on the road with automobiles; and as I write, after an experience of four weeks through Michigan on the auto, I have had something to do with meeting horses. I have not only learned about autos, but I have studied horses, and I think I have become better acquainted with them than ever before. One day in going down a gentle incline at a pretty good speed, Huber and I saw a bright young horse coming toward us across the valley. Of course, he pricked up his ears and scanned us critically. At first it was curiosity on his part to know how a carriage could go at such speed as we were going, without a horse like himself to pull it. He was using his reason, or perhaps you may prefer to call it his "horse sense." Now, a cow or a pig or a sheep pays no attention to the swift-running auto at all. It is beyond their comprehension, or it is none of their affair, perhaps, whether the carriage goes of itself or has a horse to pull it. Not so with the intelligent horse. He is keenly alive to any thing unusual or to any thing not easily explained by his horse sense. This horse of which I am speaking eyed us first with curiosity, then alarm. When he got a little nearer it was consternation; and when he decided it must be a specter or some sort of hobgoblin to go thus of itself, his consternation turned to downright dismay and fright, and he started to flee in downright terror from the apparition. His owner may have called him a "fool." Some men swear at their horses just because the animals have this God-given intelligence that comes so near human knowledge. This is all wrong. I honor the horse because of his inquiring mind, and because he is frightened and demoralized when a cow would see nothing to be troubled about at all.

I have many times felt as if I should like to shake hands, not with the whole human race, but with the whole *horse* race. Huber was studying horses, like myself; and he finally suggested that if we would talk to the horses as we went by them they would be less afraid; and he succeeded nicely. When they heard a human voice coming from the machine in tones of kindness and sympathy they became reassured. When women were driving, and there seemed to be any trouble, I jumped out and led the horse past the machine. I never found a horse I could not lead close up to it by talking to the animal and rubbing its nose to reassure it. Dozens of times people were unnecessarily alarmed. They would jump out and hold the horse, lead him up a steep bank, or off into the field, when he paid no attention to the machine whatever, and was evidently wondering what they were all making such a fuss about. When we turned out as far as we could, and slowed down the power, making the machine run as still and quietly as possible, not one horse in ten made any trouble.

Now, this intelligence I have described, on the part of the horse, I believe is largely the result of man's work. People have been for ages breeding colts from mothers that showed unusual intelligence. There are horses that learn trades. We have one in our lumber-yard that pulls a car of lumber, then turns around of his own accord, and follows the car back. No one pays any attention to him, comparatively. But he is always on hand when a car is ready to be pulled, and he knows just how to do the work. It would be as difficult to get another horse to take his place as to find a man on the spur of the moment to take the place of some of the experts in our manufacturing rooms.

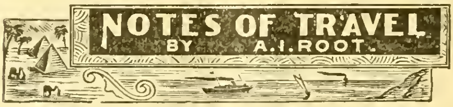
Now, I have spoken of horses at length to illustrate the way in which man, as a creator, takes hold of where God, as a creator, leaves off. I need not tell you what has been done with other animals, and with plants and fruits, as well as with horses. Luther Burbank, of California, has given us new things in the way of fruits—creations that will probably be worth millions to the human family. Edison gave us our beautiful electric lights and the wonderful phonograph. I have wondered sometimes if I could comprehend the joy and satisfaction with which Edison, Burbank, and others see humanity reap the fruits of their toil. God said in the beginning, when he looked over his work of creation, that it was good. He was satisfied. May I suggest with due reverence that he felt glad as we feel glad when our inventions become a success? In the eighth chapter of Proverbs, where the writer is speaking of wisdom, there is a strange expression:

> Then I was by him, as one brought up with him; and I was daily his delight, rejoicing always before him; rejoicing in the habitable part of his earth; and my delights were with the sons of men.

Let us now go back to that Olds automobile factory. I am not prepared to say that the Olds people made the *first* automobile. No one man man hardly ever made the first of any thing. Edison may have come very near it; but I think I may safely say the Olds people were among the first, if not the first, to make a successful machine—one that can be duplicated and sent out by the hundreds and thousands, a moving beast of burden (built by men) of iron and steel. They have opened up a new era in the way of transportation. It saddens me to see that a large part of humanity look with a jealous eye on this innovation. A woman said in my hearing, "I don't see why these awful things are allowed to run over the country." Before I could stop him, Huber flung back at her, "We have just as much right running over the country as you have." I told him that, even if this were true, we as Christian people should do every thing in our power to avoid annoying or troubling our fellow-men.

Some amusing occurrences happen now and then. At a country store where we stopped to get water, one of the crowd said, "You don't catch *me* riding after one of them things. Why, just a few days ago one of them got away from the fellow that run it, and got off into a man's dooryard; then it ran under the clothesline, scraped the people all out, and then went ransacking over the fields tearing down fences and every thing." When we got out of sight, Huber and I laughed until we felt sore over the sad tale, especially about running under the clothesline. One who has run an automobile knows it is utterly impossible for the machine to run with the driver out of his seat.

And now, dear reader, in closing this long story may I express a wish that it has given you a glimpse that may induce you to love and reverence more God the Father and Creator? and that you may also love and have more charity for poor humanity, including also the horses and all these other great and wonderful gifts he has given us to fashion in a way to serve us best? And may my story help us so that, in using all these gifts, we may reconcile our differences, and go forward with love and kindness in our hearts toward all, whether we drive this wonderful new creation, the automobile, or whether we handle the faithful horse over the new and *better roads* that God is giving us *through* the hands of humanity whom he has created, with the thought in his infinite mind of the things which, through his help, *we* may and are also creating.



NOTES OF TRAVEL

BY A. I. ROOT.

I have already mentioned our visit to Mr. H. Wilber's, at Morenci, Mich.; but I omitted to speak of the beautiful gloxinias grown by Mrs. Wilber in a north window of an ordinary farmhouse home. When I first saw them there was such a profusion of the gorgeous bloom that I thought they must be artificial flowers stuck in the rich black woods dirt to deceive people. If I remember correctly they were grown in a heavy square pasteboard box; but she hastened to bring them over to the dining-table where we were sitting, to convince me they were God's handiwork, and not the work of man. I have tried many times growing gloxinias in the greenhouse, but have always failed, and I know that many greenhouse men find it quite difficult, especially to make such a brilliant success of it. I expect Mrs. W. to give us some instructions in regard to growing them, later on.

Our invitation to call at the Wilber home was from a little girl. As her letter is brief I give it here.

> *Dear Sir:*—I am a little girl nine years old. I am Henry Wilber's grand-daughter. I thought I would write and ask you to come and see us on your way to the cabin in the woods. Mamma and I go to Sunday-school every Sunday if I am not sick; and mamma likes to read your Home talks in GLEANINGS.
>
> MISS VERA WILBER.

We made a rather longer stop at friend Wilber's, and also at O. M. Jefferson's, at Pittsford, Mich., because of some needed repairs to our machine. I have already mentioned burning out the packing to the cylinder because a rubber tube swung against a brass cock and wore a hole through it. I think this fault has been remedied by the makers already. The packing we got at the hardware stores was not suitable for standing such a degree of heat, so we had to replace it at Pittsford. Both of our bee-keeping friends seemed to be well pleased at having us make a longer stop.

I might mention here that the first time we put in new packing we made nearly half a day's job of it. The next time we did it in about an hour, and I think we could do it now in considerably less time than that. When we got to the factory at Lansing we found that they had recently got hold of a packing that would stand the heat better, even if the water did get out.

Friend Jefferson is in many respects a remarkable man, and, in fact, I don't know but I might say that of almost all the bee-keepers. They are progressive, well-informed men, and, almost without exception, men of good habits.

As we were over Sunday at Pittsford, I talked to the children briefly about the missionary work in Cuba, or, rather, the vast field for missionary work, and closed with one verse from "What a Friend we have in Jesus," in Spanish. For such a small town the church was remarkably well filled, and we were favored with a sermon far beyond what we might expect in such a little country town.

At Hudson, Mich., we called briefly on Mr. E. E. Smith. Mrs. Smith is not quite so much of an enthusiast on bee-keeping as her husband; and when I suggested that bees, like berries, were one of God's gifts, she ventured the remark that, while God gives the berries, without doubt, sometimes she was inclined to think that he didn't have any thing to do with bees. She probably referred to the stings. After Huber had taken her for a short ride on the automobile I think she was inclined to agree with me that it was certainly one of God's latest gifts.

We made a short call on our afflicted veteran in bee culture, H. D. Cutting, at Tecumseh, Mich., who is at present entirely blind. Even with this great affliction, however, he has his old genial hearty way, and seems comparatively happy and contented; and if any thing could atone for his loss of sight he has it in a large degree in his beautiful home, and wife and children. When I asked him how he kept busy he showed me his garden, and especially his peach-trees that he is caring for. It made me think of my own peach-orchard where I love to work so much around the cabin in the woods; but may God help me if I ever have to bear such a cross as does friend Cutting.

Charles S. Foote, of Ridgeway, near Tecumseh, has also a most beautiful home and family; and although he is holding one or more public offices he is quite a successful bee-keeper. He is successor to his wife's father, the late John T. Temple.

Milan, Mich., the home of Mr. M. Vincent, is quite a pretty little country town. Down near the river they have artesian wells that elevate the water eight or ten feet above the surface of the river. By the use of hydraulic rams the water is raised into tanks to supply the town. In passing through his very pretty garden and apiary Huber was stung on the neck. This would be a very small matter were it not for the fact that, whenever he is stung, the poison almost always threatens to interfere with his breathing apparatus. Perhaps I might explain here that, while bee-stings have for years troubled me less than mosquito-bites, Mrs. Root has never yet in all the years past, while we have had so much to do with bees, become so immune to the effects of the poison but that a single sting generally makes her sick. While I still think she might in time, by repeated stings, get so that it would not affect her, we have for years thought best to prevent her being stung as much as possible. Ernest had a similar experience when he first began working with bees, but now they seldom trouble him more than they do myself. Huber seems to take after his mother; and since the experience at friend Vincent's I have thought best to have him keep away from the bees unless well protected by a veil. When the effects of the sting seem to interfere with the breathing I think it's best to use caution, and I presume every one should know that several deaths have occurred from being stung on the neck in such a way that the swelling closes the air-passages. Huber was in such distress for a time that we were glad to call in a doctor whose office was only next door. Perhaps as much was due to the kind motherly offices of Mrs. Vincent as to the doctor.

We had a very pleasant visit at the old home of our Mr. Arthur L. Boyden, Secretary of The A. I. Root Co , and joint partner with Blue Eyes in possessing the two youngest grandsons that I told you about. We spent the night at Mr. Ralph Boyden's, Chelsea, Mich. Mr. B. has a flowing well that fills a barrel in just 20 seconds. It will send this volume of water 8 feet above the surface. When they were talking about piping it to the barn across the road, the man who drilled the well said he would sink another well over by the barn for less than the pipe would cost that would carry it across, and he did so. These two wells are on an elevation perhaps twelve or fifteen feet higher than a muck swamp where onions are grown very successfully; and I was surprised to learn that no thrips, smut, rot, nor any other disease or insect enemy has ever prevented them from getting a fine crop. The onion land in this vicinity, it seems to me, offers wonderful facilities to onion-growers.

At Grass Lake, Jackson Co., we were right in the midst of the huckleberry harvest. We were told that, the day before, 50 bushels had been gathered and shipped. I might add here that the huckleberry industry flourishes more or less almost all over Michigan. It gives employment to thousands of people for many weeks. At Grass Lake they said that a woman and her little girl made $4.50 in a day picking berries.

W. D. Soper, near Jackson, Mich., is one of the veterans in our ranks. Besides the bees, he is quite a strawberry-man, and has a considerable farm. The automobile, with its back seat for the children, proved quite entertaining wherever we went.

Alma, Mich., is a very pretty and progressive town. Its principal wealth is the result of the active work of a millionaire, now 80 years old, or more, though still active and full of business. We are greatly indebted to Mr. Wyman Stanton for showing us around, and explaining things to us by the use of a beautiful up-to-date gravel road, on which we could make a mile in three minutes without any trouble. After we had entertained the Stanton children with the automobile, they entertained us with music on the organ while we partook of an excellent supper. One of his little girls, I should say not more than ten or twelve years old, played some marches that I had either heard years ago or else something much like them, that made me thank God again and again for the glimpses he has seen fit to give me of the rural homes throughout our land. I looked at the child in mute wonder that it was possible for one so young to touch the keys with such wondrous skill and feeling. I often feel sad to think I can't appreciate classical music; but I don't feel sad a bit when I realize how much I enjoy hearing the children play, especially where childish voices are mingled with the childish effort on the instrument.

Friend Stanton expects to give his children a musical education; but I am really afraid that I should enjoy their playing more as it is now than after they have been to the schools.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos. are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1.00 each; $5.00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Red Clover and Three and Five-Banded Queens.

Untested, 65 cts.; 2 for $1.00. Fine tested queens, $1.00 each. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Plenty of queens, and go by return mail. Fifty and one hundred, special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENN.

Long Tongues Valuable

South as well as North.

How Moore's strain of Italians roll in honey down in Texas.

Hutto, Tex., Nov. 19, 1902.

J. P. Moore.—Dear Sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens. Yours truly,

Henry Schmidt.

The above is pretty strong evidence that red clover is not the only plant which requires long tongued bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5; dozen, $9.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.

Pendleton County.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens are a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

The Best Honey Queens

ON RECORD

Are those reared by The HONEY & BEE CO., Will Atchley, Manager. We breed six distinct races in their purity, from 6 to 35 miles apart, queens ready to go now. We make a specialty of one, two, and three frame nuclei and queens in large lots. Write for prices, they will astonish you. Untested queens of either race. 75c each; $4.25 for six; $8.00 per dozen. Tested, $1.50 to $3.00 each. Breeders, the best that money can buy, $5.00 each. We guarantee safe arrival and perfect satisfaction. Address all orders to

The BEE & HONEY CO.,
Beeville, Box 79. Bee Co., Tex.

End of the Season Problems

are discussed by such mem as R. L. Taylor, H. R. Boardman, M. A. Gill and Jas. A. Green, in the July and August issues of the Bee-Keepers' Review.

Send ten cents for these two issues, and another different issue will be sent with them, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the holder to the Review one year for **only 90 cts.**

W. Z. Hutchinson, = Flint, Mich.

QUEENS

Golden Italian & Leather Colored

Warranted to give satisfaction, those are the kind reared by **Quirin-the-Queen-Breeder.** We guarantee every queen sent out to please you, or it may be returned inside of 60 days and another will be sent "gratis." Our business was established in 1888, our stock originated from the best and highest-priced **Long-tongued Red-clover Breeders in the U. S.** We send out fine queens, and send them promptly. We guarantee safe delivery to any State, continental island, or European Country.

The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa , writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens After July First.

	1	6	12
Selected	$ 75	$4 00	$7 00
Tested	1 00	5 00	9 00
Select Tested	1 50	8 00	
Extra Selected Tested—the best that money can buy	3 00		
Two-frame Nuclei, no Queen	2 00		

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Ho! Bee-keepers! Attention!

We are again rearing the best of queens for market. We have 1000 colonies of bees, the best stock, and 10 years' experience. We have either Golden Italians or three banders. Price, 75 cts. each; $4.25 for 6; $8.00 for 12; tested, $1.50. Safe arrival and satisfaction. Give us a trial. All orders filled promptly.

TEXAS BEE-KEEPERS

We keep a large stock of honey-cans of all sizes ready for prompt shipments. Get our prices. We also want all the section and bulk comb honey that we can buy, and will take some No. I extracted. We pay spot cash. Write us.

The Hyde Bee Company, Floresville, Texas.

(Successors to O. P. Hyde & Son.)

What $10.00 Will Do

Invested in the Co-Operative Mail-Order Business. Co-operative, Profit-Sharing, Money-Saving. A Handsome Life Income Assured to Investors.

A Magnificent Mercantile Enterprise.

WE SELL At Lower Prices

Than all others, and issue complete catalogues of

Athletic Goods
Agricultural Implements
Baby Carriages
Bicycles
Bicycle Sundries
Boots and Shoes
Cloaks, Suits, and Furs
Clocks
Clothing, Ready-to-Wear
Clothing, Made-to-Order
Crockery and Glassware
Furnishing Goods
Furniture
Groceries
Guns and Sporting Goods
Harness and Saddlery
Hats and Caps
Hosiery
House-furnishing Goods
Jewelry and Silverware
Lamps
Millinery
Mackintoshes and Rain-Coats
Moving-Picture Machines
Musical Instruments
Optical Goods
Organs
Pianos
Photographic Goods
Public-Entertainment Outfits
Refrigerators
Sewing-Machines
Shirts, Men's and Boys'
Stoves and Ranges
Talking Machines
Trunks and Satchels
Vehicles of Every Description
Underwear
Watches, etc., etc., etc.

First Public Announcement

of Interest to Everybody, and Worthy of Your Closest Attention to the End, because it Contains a New Idea which will appear to You as Unique, Striking, and Certain of National Success.

THIS is an advertisement. We desire to set forth to the readers of this paper the true merits of a splendid, safe investment—opportunity—and challenge the searching scrutiny of the most conservative banker, lawyer, or business man. Let us preface the announcement by saying that this is not the mushroom scheme of a promoter, but a well-weighed, carefully balanced plan of organization matured by years of experience and careful study, and based on practical, successful operation. We have laid our entire plan and proposition before some of the leading bankers, lawyers, and business men of Chicago and other cities, also before many of the leading manufacturers throughout the United States, all of whom have pronounced it correct in principle, practical, and certain of success. All these people have been approached in a private way, and many of them have interested themselves with us. They are positively leaders in the business world, and known by everybody. Here is the proposition plainly stated: We have organized **The Cash Buyers' Union, First National Co-operative Society**, taking as a basis for this organization the old well-established and eminently successful institution, The Cash Buyers' Union, a concern which has been in successful operation for the past eighteen years, whose advertisements have appeared in every mail order, agricultural, and class advertising medium in the U. S., and whose name is a household word in every farm and village home. It has already several hundred thousand active customers scattered throughout the land from Maine to California, and from British Columbia to the Gulf. We have reorganized this institution with a capital of **Five Million Dollars.**

This is Our Plan.

We want every reader of this paper to become a stockholder of the **Cash Buyers' Union, First National Co-operative Society**, of Chicago, Illinois—one of the largest mail-order houses and the greatest co-operative store in the world. We want **small** stockholders, but thousands of them, and everywhere. We will not sell more than 100 shares ($1000) to any one individual, and reserve the right to return your subscription and money after the amount of stock allotted to your county has been placed, or for any other good reason. This means that **you must act at once** or your letter and remittance may be returned to you, thus depriving you of participation **in a great national movement toward co-operative dealing**, depriving you also of this most exceptional opportunity for a **strictly high-grade** and immensely profitable **investment**—far better than a government bond, and as safe; better than your savings-bank deposits; better than real estate, mortgages, stocks, bonds, or any other flattering investment you may mention.

We have Refused to Accept $250,000

offered by one single Chicago capitalist, who, like ourselves, is so strong a believer in the **co-operative** mail-order business, so forcibly attracted by its wonderful earning power as demonstrated by famous National successes, that he would be thankful to be permitted to invest his money in our shares. We have refused him because he could only **give us his money.**

We don't want money. We want stockholders—Co-operative stockholders—men, women, even children, all over this great country—one at least in every town or hamlet, who will, impelled by their sense of interested ownership and personal profit, make it their business to become walking, talking advertisements for this great establishment—who, no matter if they hold but one $10.00 share, will feel proud ownership in their institution, and do as owners do—Talk the Business, Push the Business, Boom the Business.

CATALOGUES Now in Preparation.

Artists' Materials
Bakers' Supplies
Barbers' Supplies
Blacksmith Tools
Books
Builders' Hardware
Butchers' Supplies
Carpets and Curtains
Cutlery
Dairy Supplies
Drugs
Dry Goods
Electrical Goods
Fishing Tackle
Furnaces
Hardware
Ladies' Wearing Apparel
Miners' and Prospectors' Outfits
Notions
Paints
Plumbers' Supplies
Surgical Instruments
Stationery
Tailors' Trimmings
Tinware
Tombstones
Tools of Every Description
Toys
Wall Paper
Woodenware

In fact, a Complete Line of

General Merchandise.

Write for any of these FREE Catalogues.

In other words, we want our stockholders to be active in and for the business—be **Owners, Customers, and Salesmen, all in one.**

AS OWNERS: You will receive 7 per cent on your investment (**that is guaranteed**) and **in addition** a proportionate share of the profits, which are from 15 per cent on the investment from the very start, and may reach 50, 75, or 100 per cent annually, according to the amount of business secured.

AS CUSTOMERS: You have special privileges in purchasing, and can buy (if you desire to patronize your own store, which is optional) at a special stockholder's discount from the regular catalogue price, which alone will save you more than your entire investment in a short time.

AS CO-OPERATORS: If you influence orders for us you will receive a vast amount of money which would otherwise have to be spent in selling expense—newspaper advertising and catalogues.

This is Co-Operation at Last

in the truest sense of the word—the people owning their own store—with a purchasing power greater, more stupendous than that of all the great department stores of New York City and Chicago combined—a purchasing and distributing power which will drive price points lower than ever before, reduce the cost of living, and enable the people in any part of the country to supply their needs—**either direct, by mail, or perhaps through local branch stores**—at nearly half the price they are ordinarily obliged to pay.

Detailed Plan of Capitalization.

We have decided to re-charter the "Cash Buyers' Union" under the name of **Cash Buyers' Union, First National Co-Operative Society**, and increase its capital stock to **Five Million Dollars** consisting of 500,000 shares of $10 each and divided as follows: **Preferred stock, $2,500,000, common stock $2,500,000**, and offered for sale at par, for cash, **preferred stock only.** The preferred stock is fully paid, non assessable, seven (7) per cent. Guaranteed cumulative and fully participating.

This Means: 1st—The preferred stock is called preferred because it constitutes an absolute first claim, in effect a first mortgage on the entire assets, property, property-rights, trade-marks, trade-rights, etc., and the net profits of the business. The common stock can not draw one cent of dividend until the preferred stock has first been paid its guaranteed 7 per cent each and every year. 2nd—It is fully paid and non assessable. Your first payment of $10 pays in full for one share, and you can not be assessed for further payment under any consideration. 3rd—An annual dividend of 7 per cent must first be paid each and every year on all the preferred stock before the common stock receives one cent, and this dividend is also first claim on all the property of the society. 4th—Fully participating means that, in addition to the 7 per cent guaranteed dividend, the preferred stock fully participates—share and share alike in all the profits of the society. For example: If the net profits of the society amount to 25 per cent on the investment the preferred stock will receive, in addition to the guaranteed 7 per cent dividend, another 18 per cent dividend. 5th—Every dollar received from the sale of preferred stock goes right into the business for active use and is represented by actual assets—dollar for dollar.

Limitation of Subscription: We should prefer to place this stock to 250,000 individual shareholders, each owning but $10.00, because the widest possible distribution of the shares is the chief object of this organization; therefore not to exceed 100 shares ($1,000) will be sold to any one individual. Again, to distribute our representation equally throughout the country, we reserve the right to decline your subscription if the amount of shares allotted to your county on the basis of population has been reached. We will not accept total subscriptions to exceed $150,000 a month, and reserve, until further notice, the right to return all money received in excess or apply it on the next month's allotment, if you prefer.

Net Profits: 15 per cent on the investment right from the start is the most conservative estimate it is possible to make for a successful business established 18 years, which is *not a new, unproven enterprise*, but a business which already has several hundred thousand satisfied customers with whom it is now doing business every day, and which *sells everything from a needle to a threshing machine*, reaching every part and point of the civilized world. During its 18 years of successful existence the *Cash Buyers' Union*—the very business you buy into—*has earned as high as 40 per cent on the capital invested* on a comparatively small business, consisting of but few departments. With the much larger business assured through the interested and profit-sharing co operation of thousands of customers, and the public at large, an even higher ratio of profit is safely assured.

History: *A return of more than thirty times the investment in six years.* The tremendous earning power of mail-order business is history. One of the pioneers in the business, as long as 25 years ago, started with a small office; and having little or no money, offered a half interest in his plant for $2,000, which money he desired for the expansion of the business. He was refused. Today this same $2,000 half-interest is worth $3,000,000 and not for sale at any price. And all this vast capital has been piled up by profits of the business. For another example: Eight years ago a Chicago capitalist entered a newly started mail-order business. He contributed to the capital of the firm less than $10,000. During the six years of his active connection with the business he withdrew many times his original investment in dividends, and finally sold his interest for considerably over a million dollars. Six years in the mail-order business netted him *more than 30 times* his original investment. All this was done under close individual partnership, with limited capital and without the tremendous co-operation and selling force of an army of thousands of co-operative stockholders. The business of two of the largest mail order houses combined amounts to $35,000,000 annually, and yields a profit of $1,400,000, on a total capitalization of less than $4,000,000, *or 35 per cent on the investment.* With such achievements by private individuals, a strongly co-operative organization with a $5,000,000 capital—greater than that of all others combined—*with the most skilled force of managers and employes recruited from its own shareholders* will, without question, achieve still greater results both in point of sales and net profits produced. *In Conclusion:* It is evident from these facts and figures, which can be verified by any commercial agency, any bank in the city of Chicago, or the publisher of this paper, that our proposition will meet with immediate national acceptance, as this advertisement appears in every paper of value from the Atlantic to the Pacific and from Winnipeg to the Gulf. It is evident, also that *this stock will be largely over-subscribed go to a premium at once*, and that the principle "first come first served" will have to be applied from the very start. While we shall be glad to send our elaborate "Book of Information" to all those who desire more complete details, we advise you, in your own interest, to *subscribe today, NOW, before you lay aside this paper;* and we and our bank agree to return your money if within 30 days after subscribing you change your mind or are dissatisfied with your investment for any reason.

Cash Buyers' Union, First National Co-Operative Society, 158 to 168 W. Van Buren St., Chicago, Ill.

REFERENCES: First National Bank, Chicago, Depositary; Metropolitan Trust & Savings Bank, Chicago, Registrars; Messrs, Lord & Thomas, Advertising Agency; Dun's or Bradstreet's Mercantile Agencies; any railroad or express company. The publishers of this or any newspaper or magazine. Any bank or reputable business house in Chicago.

Request for Prospectus.

Cash Buyers' Union, First National Co-Operative Society, Department A, 345
158 to 168 W. Van Buren St., Chicago.

Gentlemen:—Please send your complete "Book of Information" and all literature pertaining to your Co-operative mail-order business.

Name.. Street..

P. O. .... State ....

It is understood that above will be sent to me free of all charges and that I am under no obligation whatsoever to subscribe. GLEANINGS IN BEE CULTURE.

For Quick Action, Fill Out this Remittance Blank and send in plain letter with P. O. Order, Express Order, Check, or by Registered Mail if currency.
Metropolitan Trust & Savings Bank, Corner Madison and LaSalle Streets, Chicago, Ill.

Gentlemen:—I hereby subscribe for.....................................shares of the full paid, non-assessable, 7 per cent Preferred and fully participating stock of the **Cash Buyers' Union,**

First National Co-Operative Society at $10.00 per share. Enclosed find $........................... in payment of same. This stock is to be registered by you in my name, and the stock certificate sent to me, and when so registered and sent to me you are authorized to turn over my money to the company. If my subscription is received too late, the money is to be returned to me.

Name.. Street..

P. O. .... State..

WAX PROFITS.

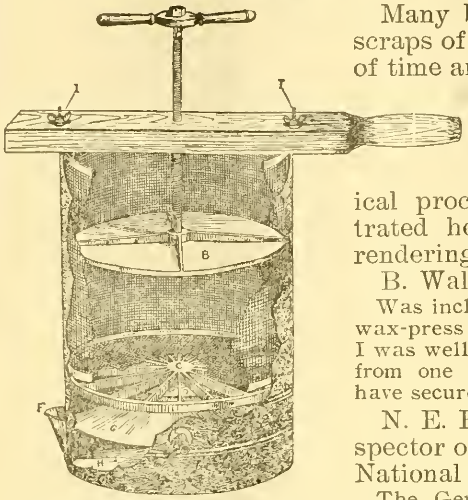


Fig. 169.—The Root-German Steam Wax-press. Price $14.00. Shipping weight, 70 lbs.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated herewith fills a long-felt want in rendering wax.

B. Walker, Clyde, Ill., says:

Was inclined to believe at first that the German wax-press was a failure; but after a thorough trial I was well pleased. I secured 30 lbs. more wax from one day's use of the machine than I would have secured by the ordinary method of rendering.

N. E. France, Platteville, Wis., State Inspector of Apiaries, and General Manager National Bee-keepers' Association, says:

The German wax-press is by far the best machine or process to save wax from old black brood-combs.

Manufactured by

The A. I. ROOT CO., Medina, Ohio, U. S. A.

..Very Satisfactory..

The four dozen queens I got of you last year are very satisfactory, being good honey-gatherers, and gentle, and finely marked. CHAS. STEWART,
Sammonsville, N. Y.
June 19, 1903. State Bee Inspector, 3rd Div.

To induce a trial we offer WARRANTED queens at 75c, six for $3 50; fine select. $1.00, six for $4.50. Queens sent promptly; satisfaction guaranteed. Hybrids or poor queens replaced free.

J. B. CASE, Port Orange, Fla.

When you want Queens that please, and want them

By Return Mail,

join the crowd and send here where the spring rush is now over. I can guarantee them to leave promptly from now on, and arrive safe. *Best Honey Strains only* are bred from Goldens, Carniolans, leather-colored Italians. 75c each, or $7.50 per dozen; tested, $1.00 each, or $10.00 per dozen.

George J. Vande Vord, Daytona, Fla.

TEXAS QUEENS FROM LONE STAR APIARIES. We are now ready to furnish you queens from the best stock of any race. These queens are equaled by few and inferior to none. Write for price list

G. F. Davidson & Son, Props., Fairview, Texas.

DON'T FREEZE but come to Florida, the land of sunshine, and buy a home among the orange groves and bees. It don't take a fortune to do so. Write for particulars. M. W. Shepard,
Hollister, Fla.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Bred for Work Terrace queens have given best of satisfaction; bred from selected stock; best of workers; very gentle, and fine color. Untested, 75c each: six, $4 25; twelve, $8.00. Tested, $1.00; six, $5.00; dozen, $9.50.

Harold Hornor, Terrace Apiaries, Mt. Holly, N. J.

Apiary for Sale.

Owing to my age I have decided to sell my yard of 16 colonies, with extra hives, supplies, etc. Price only $75 for the entire outfit. Some colonies have made 75 lbs. each, comb honey, this season. A bargain. Call on or address

R. L. Holman, Springfield, O.

Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago, Ills.

Sections, Shipping Cases, Honey Cases,

and every thing necessary for the bee keeper.

FINE ITALIAN QUEENS.

Prompt shipping. Catalog Free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street.

CARTONS FOR HONEY Wanted to introduce the best, most practical, lowest-price carton for honey, all things considered; costs nothing. We have wholesaled honey in this city for 30 years. We have seen no honey-carton equal to this. Send us five two-cent stamps, and we will send you sample, together with explanation, and some practical suggestions regarding marketing honey to best advantage; also live poultry. We originated and introduced the new popular one-pound section.

Established in 1870. H. R. WRIGHT,
Wholesale commission. Albany, N. Y.

6,000 FARMER AGENTS

are now selling PAGE FENCE to their neighbors.
Page Woven Wire Fence Co., Box S, Adrian, Michigan.

THE LUCKY "4-LEAF CLOVER"

Plymouth Cream Extractor is the CREAM of them all. Inner can quickly removable; water all around and under milk; has far greater cooling surface than any other. No water required 5 months in year. Special air chamber with ventilator. New and original faucet, impossible to leak or sour. *Express charges prepaid.* Catalogue free.

Plymouth Cream Separator Company, Plymouth, Ohio.

BUY POULTRY SUPPLIES where you are assured of high quality. We carry only the best. Everything the poultryman uses, as Incubators, Foods, Remedies, Appliances, etc. Also High Strain Poultry and Hatching Eggs.

Our Poultry Specialists

will answer all inquiries free of charge. Write us freely and ask for free catalog D.

W. J. GIBSON & CO., (Inc) Union Stock Yards, CHICAGO.
Dept. Mgr., H. M. Horton, Director Nat'l Fanciers' Association.

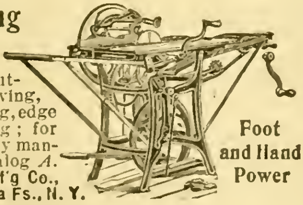
Cuba.

If you are interested in Cuba and want the truth about it, subscribe for the

HAVANA POST,

the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

Wood-working Machinery.



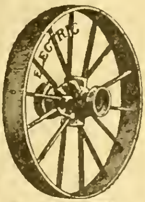
For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

THE BREAK DOWN

is usually in the wheel. They receive the strain and wear. They dry out, spokes and feloes rot, tires come loose. Get the service out of wheels you do out of gears by using

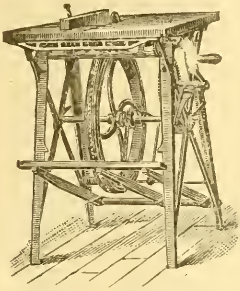
Electric Metal Wheels.



You have a wagon for a life time. Electrics are the staunchest, tightest, easiest running wheels made. Straight or staggered oval steel spokes, cast in the hub, hot riveted in tire. Broad tires, no rutting, light draft, any height, fit any wagon.

Write for free illustrated catalogue on Electric Wheels and Handy Wagons.

ELECTRIC WHEEL CO.,
Box 95, Quincy, Ills.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial.

Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

THE NORTH-WESTERN LINE
C.&N.W.RY

$30
Colorado
And Return.

First class to Denver, Colorado Springs, and Pueblo from Chicago, daily, throughout the summer, good returning October 31. The

Colorado Special

fast daily train, one night to Denver from Chicago and the central States (only two nights enroute from the Atlantic seaboard), leaves Chicago daily 6:30 P. M.

A second daily train leaves Chicago 11:30 P. M. Personally conducted excursions in tourist sleeping-cars.

For sleeping-car reservations descriptive pamphlet, "Colorado Illustrated," and full particulars, address

A. F. CLEVELAND, 234 Superior St., Cleveland, O.

Special Notices.

GLEANINGS SUBSCRIBERS.

We are adopting a new system of putting the address on the wrapper, which will take some time to install. If, because of this, the change in date of expiration of your subscription does not appear as promptly as usual after you have mailed us your subscription, please be as patient as possible. Our printer who has usually done this work has been laid up sick for over two months, and the work has gotten considerably behind. We shall get it in shape in due time.

PAPER HONEY-BAGS.

We regret to say that the manufacturer upon whom we have been depending for our supply of Aikin paper honey-bags has been disappointing us seriously in the delivery of the same, so we have been unable to fill all orders for them. Fifty-five thousand bags were ordered as long ago as April, and less than half that number have been delivered so far. We are short on 2 and 5 lb., the most popular sizes. We have ordered more since, and are making arrangements with another factory for a further supply so as to be prepared to furnish the bags promptly. We believe in their future as a cheap package for candied extracted honey, and are doing our best to get them in sufficient quantities to furnish our orders promptly. We hope customers whose orders are placed will be as patient as possible. The orders placed with Mr. Aikin have suffered most, as they are of longer standing. We have a supply of 2-lb. size in the darker color, not printed, which we can furnish while they last.

ADVANCING PRICES.

We are compelled, in self-protection, to advance still further our prices on almost all wood goods listed in our catalog. The advance in price of poplar and basswood lumber during the past year has been the most radical of any advance we have known in recent years. We ought to have advanced the price of sections in May to keep pace with increasing cost of lumber; but with printed lists out, it is difficult to increase the price right in the midst of the season, and make people understand it. We have made and sold over seven million sections since the first of May, and have used up all the basswood delivered here during the past winter for next season's use, and a good deal besides. The only thing that has made it possible for us to continue the old price till now without loss is the fact that last winter's cut of lumber was contracted before the present high level of prices was reached. The price of sections from now on will be as follows:

	No. 1.	No. 2
100	$ 75	$ 65
250	1 50	1 25
500	2 50	2 25
1000	5 00	4 50
2000	9 75	8 75
3000	14 25	12 75
4000	18 50	16 50
5000	22 50	20 00

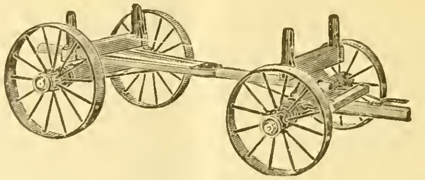
Revised tables of prices on hives, frames, section-holders, fences, shipping-cases, etc., are being prepared, and will appear in our Sept. 1st issue. Copies will be mailed to those interested on application, as soon as ready. We are planning to issue our complete catalog, with revised prices, in September.

CARTONS ADVANCED.

Increased cost of strawboard has advanced the cost of cartons to us nearly 50 per cent over what we paid a year or two ago and we are obliged to advance all prices $1.50 per 1000 in quantities large or small. This applies to the folding carton with or without tape handles, but not to the Danzenbaker carton, which we will still supply at the old prices.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.

TREES Fruit & Ornamental, Shrubs, Roses, Bulbs and Plants.

Catalogue No. 1, 112 pages, free to purchasers of Fruit and Ornamental Trees. No. 3, 64 pages, to buyers of Holland Bulbs and Greenhouse plants. Try us, satisfaction guaranteed Correspondence solicited. 50th year. 44 greenhouses. 1000 acres.

THE STORRS & HARRISON CO.,
PAINESVILLE, OHIO.

4,000,000 PEACH TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

Extension Axle Nuts

Make old buggy run like a new one. Sure cure for wabbles and rattles. Quick seller and very profitable. *Agents Wanted.*

Hardware Specialty Co., Box 129, Pontiac, Mich.

FOR SALE.—75 colonies Italian bees in 10-frame hives; also 100 colonies in 8-frame hives at $1.50 each; in lots of 10, $1.00 each. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—5000 lbs. fine clover comb honey, produced with separator; also 3000 lbs. extracted, in 60-lb. cans, thick. JOHN C. STEWART, Hopkins, Mo.

WANTED.—Comb and extracted honey; state price, kind, and quantity. L. H. ROBEY, Worthington, W. Va.

A few hybrid queens for sale at 30 cts. each. T. N. BRIGGS, Marion, Mass.

Hybrids at 15 cts., and mismated at 25 cts., for sale by C. G. FENN, Washington, Conn.

THE BEST FRUIT PAPER
Southern Fruit Grower
CHATTANOOGA, TENN.

Every grower of Fruits and Vegetables should read it.
Only 50 cents a year.
Splendid advertising medium.
Sample copy free.

Queens from Jamaica

ANY DAY IN THE YEAR AT THE FOLLOWING PRICES:

Untested, 66c; tested, $1.00; select tested, $1.50; breeders, $2.50. Our queens are reared from the very finest strains. Please write your address plainly when ordering. Address

Geo. W. Phillips, Sav-La-Mar P. O., Jamaica, W. I.

ITALIAN BEES FOR SALE!

Full colonies $4.00; three frames with queen, $2.25; two frames with queen $2.00; one frame, $1.50; queen, $1.00. **Mrs. A. A. Simpson, Swarts, Pa.**

Warranted Queens.

L. H. Robey, Dear Sir:—Enclosed find one dollar and twenty cents ($1.20) for which you will please send me two (2) warranted queens. The queens you sent me last year have proved to be excellent. I introduced one into a three-frame nucleus on Aug. 22, 1902, and on Aug. 25, 1903, I took 228 lbs. of comb honey, leaving 10 Hoffman frames in the brood-chamber for the coming winter; that is very good for a nucleus. Be sure to give my street number, 525 Dakota St., for the queens you sent me last year were carried to another Wm. Zimmerman, and I did not get them until the next day. WM ZIMMERMAN.

San Antonio, Texas.

Warranted queens, 60 cts. each in any quantity. Satisfaction guaranteed or money refunded.

L. H ROBEY, WORTHINGTON, W. VA.

Circular Free.

Queens Big hustling beauties, bred for business from choice honey-gathering strains; 3 banded and golden Italian, for the rest of this season, 55 cts. each, $6 per dozen; tested, 85 cts. each. Safe arrival and satisfaction guaranteed. EARL Y. SAFFORD, Salem, N. Y.

FINE QUEENS FROM THE BLACK HILL APIARIES Golden and Long-tongue. Write for price list. Reference, G. F. Davidson & Son. **Carver & Mathis, Props., Verdi, Texas.**

FOR SALE.—House; big barn; 6 acres land; 100 colonies bees and fixtures; 10 rods from public square. Every thing up in good shape. Gas-well on lot. Cheap. W. W. STARRETT, Litchfield, Ohio.

NICK OHMER, a new strawberry of great merit. **FOR SALE**--well-rooted plants. 10c per dozen, mailed postpaid; by express, not prepaid, $1 per 100, $1.25 per 1000; or by mail, 25c per 100 extra. W. L. PHILLIPS, 2135 Roosevelt St., Indianapolis, Ind.

Wants and Exchange.

WANTED.—To sell bees and queens. O. H. HYATT, Shenandoah, Iowa.

WANTED.—Comb and extracted honey. See honey column. GLEASON & LANSING, Buffalo, N. Y.

WANTED.—To sell fine job-printing outfit, nearly new. J. W. STEBBINS, Broad Creek, Va.

WANTED.—Bees, for fine lot at Rosemere Park, L. I. JOHN H. RISING, Gaskill, N. Y.

WANTED.—Plymouth Rocks and Minorca pullets. Give strain and prices. J. B. ENOS, Charleroi, Pa.

WANTED.—A partner in the bee business, box factory, and a patent bee-hive. D. S. HALL, So. Cabot, Vt.

WANTED.—Simplicity or Heddon hives and supers. State lowest cash price. E. BRUBAKER, 14 N. 3d Street, Philadelphia, Pa.

WANTED.—To exchange nice young Italian queens for honey. Correspondence solicited. JAMES WOOD, North Dana, Mass.

WANTED.—Honey or any kind of syrup suitable for summer feeding. FRANK T. HOOPER, E. Downingtown, Chester Co., Pa.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free. Address HENRY ALLEY, Wenham, Mass.

WANTED.—Old postage stamps, especially foreign. Send list of what you have to offer and price asked with samples. A. L. BOYDEN, Medina, Ohio.

WANTED.—To exchange modern firearms for old gold watches and solid gold jewelry of any kind. W. S. AMMON, Reading, Pa.

WANTED.—To exchange Belgian hares for Dov'd hives, wired brood-frames, extractor, nuclei, or full colonies of bees. S. C. JONES, Alplaus, N. Y.

WANTED.—To sell Foxhound puppies and dogs, Hovey strain, some Cocker Spaniel, finely bred. Write for prices. W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.

WANTED.—To sell Novice Extractor, which, on account of death and change of business, I shall have to sell. Has been used only once, and will be sold at a bargain. JOE. S. WISE, Hazlehurst, Miss.

WANTED.—To exchange copy of *New York Herald*, April 15, 1865, in good condition, containing detailed particulars of President Lincoln's assassination. Best offer gets it. ELIAS FOX, Hillsboro, Wis.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange postage stamps with collectors, especially in West Indies, Europe, British colonies, Mexico, and United States. State what you have to offer and what you want in exchange. A. L. BOYDEN, Medina, Ohio.

WANTED.—The address of every bee-keeper that makes his own hives. The "Kold Klimate" bee-hive makes the best outside case in the world for wintering bees in any kind of hives. D. S. HALL, So. Cabot, Vt.

WANTED.—To sell, for 65 cents each, choice untested queens, reared from selected mothers, the Carniolan-Italian cross—the coming bee for comb honey. A trial order will convince you. Satisfaction guaranteed. L. H. PERRY, Clay, N. Y.

WANTED.—To sell my Sable and White Scotch Collie dog, one year old, eligible to register, good farm dog, easily taught, good with children, very affectionate; thoroughly house-broken, and very handsome. Price, cash, $20.00, or will take $25.00 in honey. F. N. CHAMBERLAIN, Tyngsboro, Mass.

WANTED.—We want to send a catalog free, of the Koger Well-drilling machine to anybody who needs a well at his house, barn, or fields. Especially for domestic well-making. The farmer's friend, two or more buying and doing their own well-making when other work is not pressing. Cheapest by half, and the most practical of any. Best money-maker on the market. J. J. KOGER & SONS, Mooresburg, Tenn.

WANTED.—To sell by 15th of December, 240 acres of land, 5½ miles southwest of Harrisburg, the county seat of Poinsett Co., about 40 acres in cultivation; small orchard, good water, log buildings; good stock and bee range; balance of land well timbered; cross-ties, saw timber, etc. Mild winters; good title. Price $1500.00 cash. The price will double in a few years. Will sell my bees and live stock at a reasonable price. For further information call on address A. L. JOHNS, Harrisburg, Ark.

PAGE & LYON,
New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .

BEE-KEEPERS'
SUPPLIES. . . .

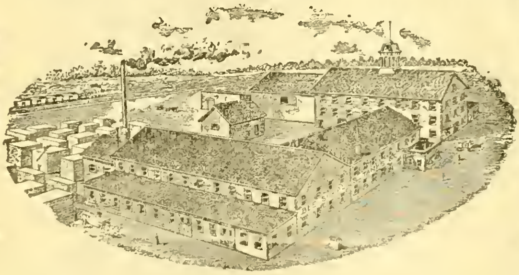
Send for Our Free New Illustrated
Catalog and Price List. . . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



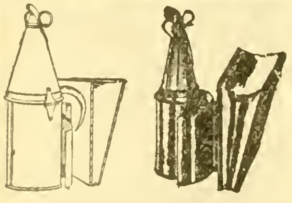
Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE-SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa,
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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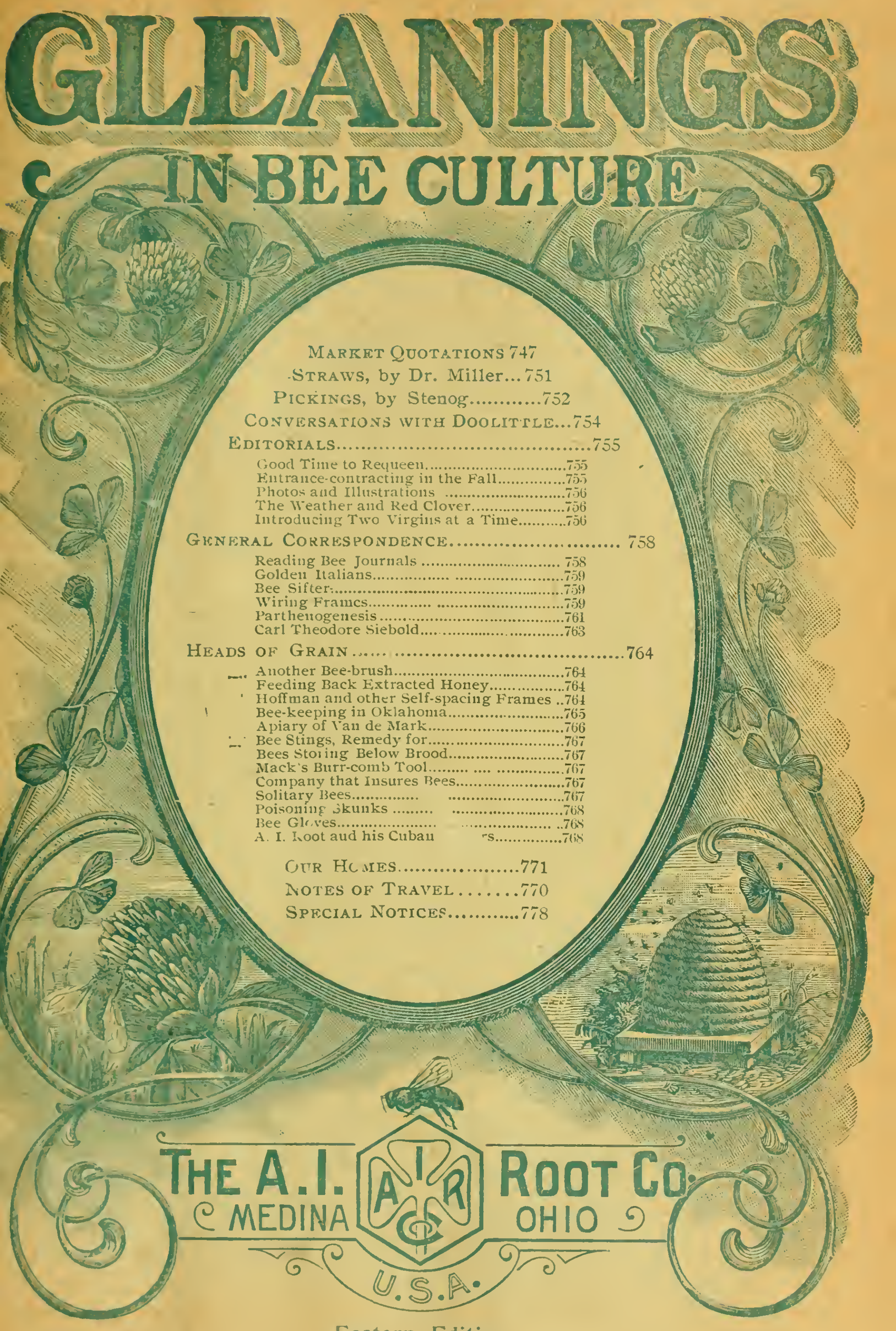

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MEDINA OHIO
U.S.A.

Eastern Edition.

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QUEENS!

BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued, or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

AUG. AND SEPT. PRICES:

Tested, each	$1 25
Select tested, each	1 50
Warranted purely mated, each	75
Same, per half dozen	4 25
Same, per dozen	8 00
Untested, each	65
Same, per half dozen	3 75
Same, per dozen	7 00

We have also a full line of bee-keepers' supplies including **The A. I. Root Company's Goods, Root's Sections and Weed's Foundation a Specialty.** Send for our 32-page illustrated catalog.

W. W. Cary & Son,

Lyonsville, Mass.

TORONTO

is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-Keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

E. GRAINGER & CO.

12 Yonge Street Arcade.

Special Notice to Bee-keepers!

BOSTON

Money in Bees for You.
Catalog Price on

ROOT'S SUPPLIES

Catalog for the Asking.

F. H. Farmer, 182 Friend St., Boston, Mass.
Up First Flight.

Northeastern
and
New England

Bee-Keepers!

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. MASON,

Mechanic Falls, : Maine.

Manager The A. I. Root Co.'s N. E. Agency.

—THE—

DANZ. HIVE

The comb-honey hive is one of our specialties. Send for booklet telling about it.

We are the jobbing agents for The A. I. Root Company in Michigan, and want the name and address of every bee-keeper in the State, whether you have one swarm or 500.

M. H. Hunt & Son

Bell Branch, Mich.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

SAN FRANCISCO.—Honey, new comb, per lb., white, 13@14; light amber, 12½@13. Extracted, water-white, 6@6½; light amber, 5½@6; dark amber, nominal. Beeswax, 32c. ERNEST B. SCHAEFFLE,
Aug. 11. Murphys, Cal.

SCHENECTADY.—We have received a number sample lots of new white comb and extracted honey. Producers think the should get 14@15c for comb, and 6@7 for extracted, but it is yet too early to determine whether or not these prices can be realized.
CHAS. MCCULLOCH,
Aug. 12. Schenectady, N. Y.

BOSTON.—There is a little better demand for comb honey. Prices ranging about 16c for fancy white. Practically no stock to speak of as the new crop has hardly commenced to move. Extracted honey ranges from 6@7½, according to quality, with but little doing.
BLAKE, SCOTT & LEE,
Aug. 11. Boston, Mass.

DENVER.—New crop of comb honey coming in rather slowly. No. 1 white sells at $3.00 per case of 24 sections; No. 2 at $2.75. White extracted honey, 7½@7¾c per lb. Beeswax, 22@25.
COLORADO HONEY-PRODUCERS' ASSOCIATION,
Aug. 10. 1440 Market St., Denver.

BUFFALO.—Demand for new honey is very slow. It is partly on account of warm weather and fruit season. Prices are a little high, and that helps to hold buyers back until it is settled pretty near what the new crop will sell for. Fancy white comb, 14@15; a No. 1, 13½@14; No. 1, 12@13; No. 2, 11@12; No 3, 10@11. amber, 12@13; dark, 11@12; white extracted, 6@7; dark, 5@5½; beeswax, 28@32.
W. C. TOWNSEND,
Aug. 22. 178, 180 Perry St., Buffalo, N. Y.

CINCINNATI.—New honey is now offered very freely, particularly extracted. The demand for honey is about as usual at this time of the season. I made sales at the following figures: Amber, 5@5½; water-white alfalfa, 6½; fancy white-clover honey, 7@7½; comb honey, fancy water-white, brings from 14@15. Beeswax, 27@30. C. H. W. WEBER,
Aug. 8. 2146-8 Central Ave., Cincinnati, Ohio.

PHILADELPHIA.—Honey has been arriving quite freely in the last ten days. We quote extracted fancy white, 7@8; amber, 6@7; fancy comb honey, 15@16. No. 1 14@15. Beeswax in good demand at 30. We are producers of honey, and do not handle on commission.
WM. A. SELSER,
Aug 8. 10 Vine St., Philadelphia, Pa.

MILWAUKEE.—There is more activity in the honey business since our last report. Receipts of new crops are coming forward, and sales being made. The quality of the stock received seems very fine, especially the sections showing care in grading and packing, thus encouraging the consumer to partake. We are expecting a good demand for all grades, and the market is in good condition for shipments. We quote for fancy 1-lb. sections, 16@17; No 1 ditto, 15@16; old and new, dark or inferior, nominal, 8@10; extracted in barrels or cans, white, 7½@8; same, darker, 6½@7. Beeswax, 28@30. A. V. BISHOP & CO.,
Aug. 6. 119 Buffalo St., Milwaukee, Wis.

TOLEDO.—Honey is coming in quite freely; and in spite of the warm weather it is in fair demand at the following prices: Fancy white comb brings, in retail way, 16; No. 1 ditto, 15; amber ditto, 12@13. Extracted, white clover, in barrels, 6; same in cans, 7. Beeswax, 28@30. GRIGGS BROTHERS,
Aug. 7. 214 Jackson Ave., Toledo, O.

DETROIT.—Prices are not established yet on new honey. The crop is the largest we have had in many years in our section of the State. Quality is excellent. Small lots are selling for 15@16 for A No. 1. Commission men are waiting until prices are settled.
Aug. 8. M. H. HUNT & SON, Bell Branch, Mich.

FOR SALE.—Clover extracted honey, in 60-lb. cans. One can, 7½c; 2 or more, 7c. Bees for sale.
C. L. PARKER, Syracuse, Sta. A, N. Y.

FOR SALE.—Fancy basswood and white-clover honey; 60-lb. cans, 8½c: 2 or more, 8¼c; bbls., 7½c.
E. R. PAHL & CO., Milwaukee, Wis.

FOR SALE.—Extracted honey, clover and basswood, in 60-lb. cans. M. ISBELL, Norwich, N. Y.

FOR SALE.—New extracted honey, from 7c up. Several sizes of packages. Sample 10c.
I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Alfalfa honey. Extracted in 60-lb. cans, and about 20,000 lbs. in comb. Prices on application.
CHEEK & WALLINGER, Las Animas, Colo.

FOR SALE.—Fancy comb and extracted honey; extracted in 60-lb. cans. Prices quoted on application.
WILLIAM MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—5000 lbs. extra-fine clover extracted honey, all sealed before extracting; castor-oil body; good color; 60-lb. cans. Sample free. No cheap John need apply. If you need something special and are willing to pay for it, correspond with
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

WANTED—Comb and extracted honey; state price kind, and quantity. L. H. ROBEY,
Worthington, W. Va.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—To hear from producers of comb honey in California and Nevada. It may sound unreasonable, but we have probably bought, for spot cash, more comb honey than any firm in the United States, during the past three seasons. We can, no doubt, do you some good. THOS. C. STANLEY & SON,
Manzanola, Colo., or Fairfield, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM,
1318—1324 Union Avenue, Kansas City, Mo.

The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for w catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, New York.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

We Make a Specialty of

Prompt Shipments.

If you are in a hurry for supplies send us your order and we will surprise you with our promptness. All goods shipped within 10 hours after receiving the order. Over a million sections and two tons of foundation now on hand. Hundreds of hives, and all other supplies **READY FOR IMMEDIATE SHIPMENT.**

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HONEY JARS

1-lb. sq. jars with corks......$5.00 gross
2-lb. sq. jars with corks......$7.40 gross
Eagle or No. 25....................$5.75 "
Nickel Cap jar, holds 13 oz. $5.50 "

The last is a fancy jar, and makes a fine package for exhibition. Discount on quantities of jars; the larger the quantity the lower the price. Catalog describing honey-packages, shipping-cases, cartons, bee-hives, bees, and every thing a bee-keeper uses, mailed upon application.

Tested Italian Queens, $1.00; Untested, 75 cts.

I. J. STRINGHAM,
Apiaries. Glen Cove, L. I.
105 Park Place, New York.

Gleason & Lansing,

ESTABLISHED 1888.

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Jobbers of Comb and Extracted Honey.

We have a large jobbing trade in comb honey, and can use any-sized shipments up to car lots. We want 5000 cases as early shipment as possible this season and can use all grades. Will buy delivered in Buffalo or handle for your account. . . . .

Correspond with us before placing your output this season.

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Manufacturers & Traders National Bank, Buffalo, N. Y., any Express Co., Dun or Bradstreet Agencies, Buffalo, N. Y.

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19 Friend St., Boston, Mass.

POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
Inland Poultry Journal, Indianapolis, Ind.

STANDARD-BRED

ITALIAN QUEEN BEES

Our untested queens give excellent satisfaction. They are bred by the best breeders, and are up to standard.

Prices are as follows:

1 Untested Italian Queen..............$ .75
3 " " " $2.10
6 " " " $4.00

We are sending them almost by return mail.

The Weekly American Bee Journal and one of these fine queens, both for $1.50. Sample copy of the Bee Journal sent free. Ask for it. You ought to have it every week. It is a great bee-paper—so they say.

ADDRESS

George W. York & Co.,
144-6 East Erie St., Chicago, Illinois.

"Root's Goods at Root's Prices."
Catalog Free.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

The Marshfield Manufacturing Company, Marshfield, Wis.

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RETAIL AND WHOLESALE.

This foundation is made by a process that produces the superior of any. It is the cleanest and purest. It has the brightest color and sweetest odor. It is the most transparent, because it has the thinnest base. It is tough, clear as crystal, and gives more sheets to the pound than any other make. **Working Wax into Foundation for Cash a Specialty. Beeswax Always Wanted at Highest Price.** Catalog giving full line of supplies, with prices and samples, free on application.

E. Grainger & Co., Toronto, Ont., Sole Agents for Canada.

Gus. Dittmer, Augusta, Wis.

WANTED! Fancy Comb Honey

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The Fred W. Muth Co., FRONT and WALNUT, Cincinnati, O.

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The Largest Stock we ever Carried

of HIVES, SECTIONS, and all Other SUPPLIES.

Perfect Workmanship and Finest Material.
All parts of our Hives are made to fit Accurately.
No trouble in setting them up.
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We are not selling goods on NAME ONLY,
But on their Quality.

G. B. LEWIS COMPANY,

Manufacturers Bee-Keepers' Supplies.

Catalog Free. **Watertown, Wisconsin, U. S. A.**

QUEENS NOW READY TO SUPPLY BY **RETURN MAIL**

Stock which can not be excelled. Each variety bred in separate apiaries, from selected mothers; have proven their qualities as great honey-gatherers.

GOLDEN ITALIANS have no superior, and few equals. Untested, 75 cts.; 6 for $4.00.
RED-CLOVER QUEENS, which left all records behind in honey-gathering. Unt., $1; 6, for $5.
CARNIOLANS—They are so highly recommended, being more gentle than all others. Unt., $1.

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C. H. W. WEBER, 2146-2148 Central Avenue, CINCINNATI, OHIO.

(Successor to Chas. F. Muth and A. Muth.)

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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Stray Straws

By Dr. C. C. MILLER.

WHITE CLOVER "usually lasts two weeks, and sometimes a month," at Medina, page 723. Some years it doesn't last at all here, but this year it has already lasted eleven weeks, and the end is not yet in sight.

ELIAS FOX, didn't you have a "stick" in that lemonade to make a little of it give up and become alkali, and then with sufficient recruits recover its spirits and change back again to acid? In this locality one may be overcome by the other, but I don't believe one is ever changed into the other.

AFTER READING IN GLEANINGS about the right way to hold a smoker, I was worried for fear I was pigeon-toed in my hands. I am now pretty well satisfied that I don't need any surgical operation, but that it's the editor who is pigeon-toed in his hands — or else in his head. [Now, look here, doctor; if you do not quit calling me names I shall get after you with both of my "pigeon-toed" feet.—ED.]

I HAVE one of the bee-brushes sent out by Mrs. Sarah A. Smith, as advertised in GLEANINGS, and they're fine for a wholesale sweep of the combs. They're made of some kind of grass, a sort of vegetable horse-hair, very fine and very tough, and should last well. Possibly they would be just a little better if the tip ends were not clipped off. [These brushes appear to be very soft and pliable. It is possible they would make the best bee-brush in the world. —ED.]

A CORRESPONDENT wants me to tell what kind of season I'm having. Bless your heart, the bees are driving me so I haven't time to tell. But I'll just take time to say I never saw such a flood of honey before, and never expect to see it again. [That beats any thing we ever had here or expect to have; and I am beginning to feel that the region in and about Medina is almost as poor for the production of comb honey as any place in the United States, because our honey-flows are so very, very short.—ED.]

WON'T SOME ONE come between the editor and me, and clear away the smoke on the smoke question? We're square fornenst each other in our impressions about the smoke of rotten and sound wood (by the way, I think the most savage smoke comes from *green* wood), but neither of us furnishes any proof. Who has any positive proof? [How can positive proof be produced unless we accept one's individual feelings and impressions after inhaling the smoke from rotten wood and that from hard wood? We have been trying our own experiments over again, and our experience is the same as before — that rotten wood will give a more subduing smoke than hard wood.—ED.]

YOU ASK, Mr. Editor, whether I hived shaken swarms (that swarmed afterward) on starters, etc. They were hived on full combs, although other years I used also foundation, and I think the combs gave better results than foundation. [Inasmuch as we had no swarms from bees shaken on foundation, and your bees shaken on full combs did swarm, it would look as if there were some merit in foundation. The fact that bees start housekeeping almost from the ground up, when put on foundation, puts them more nearly back to the condition of nature — that is, the hollow tree. The old combs have a tendency to suggest to the bees that they haven't swarmed, I think.—ED.]

INCUBATORS, or nurseries, may be used by other than professionals to advantage. I've been using them for queen-cells cut out of combs. Thus I avoid the chance of a virgin with a bad wing or a cell with a dead queen, and can hold over a virgin until needed. The Stanley cartridge has the advantage that the bees can get to the cells as freely as if the cells were left on the comb, and the disadvantage that, if a hole is in the cell, the bees will tear it down; whereas in the Pridgen the whole side of a cell may be cut away and the queen still hatch out. The queens worry somewhat trying to get out through the perforations of the Stanley, and sometimes one gets through; but you can take a queen, cartridge and all, wherever you like, and can get her only by letting her out of her compartment in the Pridgen. [Your experience is quite in line with ours.—Ed.]

"The scarcity of lumber for making sections may force bee-keepers into chunk honey more and more as time goes on," p. 721. Chunk honey may be all the go yet, for any thing I know; but the scarcity of lumber will be a very small factor in the case. If we can't have one-piece sections we can have four-piece made out of a dozen kinds of wood; and if all the basswood were swept out of the universe it wouldn't make section honey cost the producer half a cent a pound more, now would it? And do you think a rise of half a cent a pound would drive section honey out? Tut, tut! [No, a rise of half a cent a pound only would not drive section honey out of the market; but a big advance in the price of sections, and the enormous labor of handling four-piece as compared with the one-piece might make some bee-keepers become so disgusted and discouraged as to cause them to say they would either give up comb honey or turn their attention to the production of extracted and chunk honey, where there was less bother. The question of price is not all there is to consider in the matter. It is somewhat a question of convenience.—Ed.]

"Why do you not tell honey-producers to set an honest price on their honey, and then stick to that price? We have found that it is as easy to get 75 cents per gallon as it was to get 60 cents." Ah! but there's a limit to that thing, my good friend; and if each one were allowed to decide for himself an honest price, and then hold on to that price, I'm afraid in too many cases he would hold honey as well as price. You say, "If The A. I. Root Co. would put up the price, others would have to follow." The members of the Root company are old enough to answer for themselves; but I *think* they try to put the price as high as the traffic will bear. I'm hoping a little that something like what you are aiming at will be accomplished when all bee-keepers fall into line and become members of the National Association. I wish they would hustle in a little faster. Twelve hundred is something to be thankful for, but there ought to be twelve thousand. [It is folly to talk about advancing the price of any article or commodity unless there is some sort of co operation on the part of all those who have the commodity for sale. In a year when there is plenty of honey, when there are any number of offerings, the buyer almost hesitates to make any price until he knows to where the market will actually level up. But there is one thing that careless buyers may do; and that is, offer their honey needlessly low, thus in a season of scarcity depressing the whole market down to the lower level. Such buyers, if it could be done, should be made to pay well for their honey the next time.—Ed.]

Referring to the matter of queens being stung in a ball, Mr. Editor, you don't find any place where I placed any limiting clause. Please turn to page 276. "I don't know, but I *think* a queen is never stung in the ball, and I much doubt the physical possibility of such a thing. . . Weren't the cases in which you saw the queen stung those in which you poked or smoked the bees away from the queen enough so that one of them could sting her? Left entirely to themselves, do you believe the bees could sting a balled queen if they would? Do you believe they would if they could?" etc. You see we are pretty nearly together, only I think it possible that bees left to themselves would merely hug a queen, even if they could sting her. In a nutshell, I don't believe a queen in a ball, undisturbed by the bee-keeper, is ever stung. There is still left, however, the bare possibility that I don't know as much about it as I might. [I give it up; but I am of the same opinion still, that the bees will sting a queen in the ball, when the apiarist is not interfering, if they can. But when their heads are all turned one way, and they are seeking to ball her, or, rather, to get to her, it is almost an impossibility, but not quite, to get at the queen stern first.—Ed.]

Pickings from Our Neighbors Fields
BY
"Stenog."

A writer in *Schweiz. Bienenzeitung* gives an interesting account of a queen and her daughter laying eggs side by side in perfect harmony for one whole year.

*

A reader in Hinckley, Minn., wishes to know how the words *apiary* and *apiarist* are pronounced. The *a's* are long as in *ail*; the *i* is short as in *tin*, as is the *y*. This applies to both words. We shall be glad to make a specialty of answering such questions in this department.

*

A French paper has the following piece of pleasantry in favor of adulterated honey: Several women of Baden-Baden were brought before a justice, charged with having sold adulterated honey. Among the buyers subpoenaed as witnesses was the proprietor of one of the most fashionable hotels there. While the other witnesses responded to the judge that they did not know the honey was adulterated, the landlord in question avowed frankly that the fact was known to him very well. Astonished, the judge asked him why he served such stuff, knowing it was bogus. "If I serve up genuine good honey," said he, cynically, "my boarders eat too much; while with this stuff here, they soon get enough."

AMERICAN BEE JOURNAL.

The issue of Aug. 13 gives a very fine half-tone of Thos. Wm. Cowan, editor of the *British Bee Journal*. Mr. York well says of this distinguished man whose name is so well known in the scientific circles of Europe and America:

> Mr. Cowan is a most delightful man to meet. He is the very essence of affability and courtesy, and his character and ability are of the highest possible. He is a member of many of the famous scientific societies in England, and has won for himself a deservedly conspicuous position in them.

* * *

In regard to having your bowl ready when it rains soup, Mr. York well says:

> It is not wise to wait to see what the harvest will be before ordering supplies needed to secure it. Some bee-keepers, who have followed that plan, have been badly caught this year. Their stock of sections has run out, and more could not at once be obtained, because they were not made, and the manufacturers were away behind orders.
>
> The fall of the year is none too early to order for the next year. Count your fall number as wintering without loss, then figure the number of sections they will require should the season be the best you have ever known, and order accordingly.
>
> But you say, "There will in that way generally be a lot of dead capital, for nine times out of ten so many sections will not be needed."
>
> The loss from dead capital will be less in ten years than the annoyance and loss in one year of heavy flow, if you run out of sections and can not get any. It is better to make up your sections and get them all ready in the supers in winter-time or early spring, while not crowded with other bee-work. If you don't need them they will be all right for the following year. Even if not used for three or four years, they will take no hurt.

L'ABEILLE.

L'Abeille reports a good honey crop in Belgium. It says, "In spite of many bad days, great alternations in heat and cold, we shall have no fault to find with 1903. It has brought joy to the heart of a great many bee-keepers in this country. There is honey everywhere."

The editor of *L'Abeille* says he received, the last of June, through the agency of Mr. Giraud-Pabou, an Italian queen raised in the United States. He adds, "The abdomen is almost entirely a shining yellow as far as the last band. It is not without reason that these have been called golden queens. The daughters of this queen, hatched since her introduction, are likewise the most beautiful Italians, and the gentlest we have ever seen. We hope their value as honey-gatherers will be in proportion to their beauty."

CUPID'S TRICKS.

BY EVA C. MURRAY.

A bee lit on a bright-red rose
That in the garden grew,
And stopped for just a moment
To drink the morning dew.

A gentle maiden passed that way,
And saw the lovely rose,
So plucked it from the graceful stem
And held it to her nose.

The saucy, angry little bee
Just stung with all its might,
Which made her drop the dainty flower
And run away in fright.

But ere she passed the garden gate,
A youth came wandering by,
And paused to ask her, "Pretty one,
Why is it thus you cry?"

"Ah!" sobbed the maid, "an ugly thing
With little things of lace
Did when I tried to smell the rose,
Just sting me on the face."

"The horrid thing!" the youth replied;
"We'll teach him better tricks:
Come show me where you left the rose—
This matter we must fix."

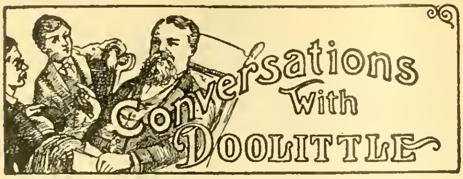
But when they found the castaway,
And hunted for the bee,
A Cupid from its petals sprang,
And laughed aloud with glee.

"Ha, ha! an easy catch, I'm sure,
So early in the day;
A rose holds bees and Cupids too—
Pray turn me not away."

And so they took the cup of love
He offered them, and drank;
And now for love and happiness
A little bee they thank.

MORAL.

It is the little stings through life
That help enrich the soul,
And help us, though we may not think,
To make our life the whole.



UNITING AND FEEDING FOR WINTER.

"Where is our buckwheat honey now, Doolittle?"

"Evidently all gone. Passed away in about ten minutes yesterday, and the hundreds of acres on which it was in such a flourishing condition yesterday morning might better have been left unplowed and unsown. But I pity the farmers more than I do us bee-keepers. We lose only a prospective honey harvest, while the farmer has not only lost his prospective crop of buckwheat, but all of his labor, seed, grain, and the use of his land. Such a hailstorm was never known before in this locality at this time of the year, and I hope such a one may never come again."

"And the loss of buckwheat only commences the loss. Oats and barley are so thrashed out that the fields will hardly pay for harvesting; corn is in shreds, beans are all broken to pieces, the pods as well as the vines; more than half the apples and pears are on the ground, and what remains on the trees have from three to twenty hailstone dents in each fruit, many of these dents breaking the skin."

"Yes, I have seen all of these things, and I can not help mourning. But mourning will do no good. Let us talk about something brighter. What brought you over here to-day?"

"Well, I had several colonies of bees that I had calculated would build up for winter on buckwheat; but now there is no show along that line, so I came over to ask you what I had better do with these light colonies."

"Have they their hives full of comb?"

"No, not many of them. And that is one of the things which bother me. If they were strong in bees, and the frames all full of comb, I would try to feed them, although I could hardly afford to buy sugar for so many."

"Well, I would wait till the first of September, as we may yet have some honey from an unexpected source. If we do not, then I would unite these weaker colonies, doing it as early as the 10th to 15th of said month, as we never have any yield of honey worth speaking of later in the year than the middle of September."

"How would you unite?"

"On some cool cloudy day, when the bees fly but little, or, better still, some day near night, after we have had cool cloudy weather for a day or two, so as to keep the bees at home, I would take the weaker of two colonies and carry it and set it right on top of the colony I wished to unite it with, stopping all cracks, if there should be any large enough to allow bees to pass between the two hives. As soon as the cracks are stopped, blow smoke in at the entrance and pound on the hives with the fist till the bees begin to make quite a roaring, this showing that they were filling themselves with honey."

"What do you want them to fill with honey for?"

"Two reasons—the first of which is, that they do not fight or quarrel; and, second, that the colony brought to a new location may mark their new home instead of going back to their old place of abode."

"Will this cause them to do that?"

"Yes. A few bees may return and hover about the place where they formerly stopped, but soon all will return, so no bees are lost."

"That is very simple. How long have you united in that way?"

"Every fall I have a lot of nuclei to unite, left after the season for queen-rearing is over; and last year I found that I could unite bees in this way without loss."

"But what about the combs?"

"After placing the hives having the colonies in together, as I have told you, wait a few days till the bees have had two or three flights, and have become accustomed to the new situation, when you will go and select out all of the best combs, and those containing the most honey, putting these into the lower hive. In this way you will be liable to secure fairly comfortable combs for the one hive."

"Yes, I see. But how about those which remain?"

"Shake the bees off from these, down at the entrance so they will run into the hive with the others, and then you can store these frames partly filled with comb for use another year. If much honey remains, you can put an enameled cloth over the hive having the bees in, and turn up one corner of it a little so that but few bees can come out of the lower hive at a time, and then set the hive having the combs left after uniting on top of this; and by uncapping what honey there is that is sealed, the bees will soon carry below what there is."

"How about the queens?"

"If you have any choice, you will want to kill the poorer of the two a day or two before uniting. If you do not have any choice, then pay no attention to this matter, and the bees will destroy one of them, as only one good queen is allowed to dwell in a hive at a time."

"That will be easy, as I do not know that one is better than another. But suppose that, when I have the colonies all united, and the honey all fed up, they do not have enough stores for winter. What then?"

"Then you will want to feed them till they do have enough."

"What shall I feed for this?"

"I would use a syrup made of granulated sugar, as I consider such fully as good as honey, and, as a rule, it is cheaper."

"How do you make this syrup?"

"Some simply pour boiling water on the sugar, and stir it till the sugar is dissolved; but for fall feeding, or in feeding for winter stores, after the honey harvest is past, I prefer the following to any other mode of making syrup: Fifteen pounds of water is weighed out and put into a tin vessel of suitable size. This vessel is then put over the fire till the water in it boils, when 30 pounds of granulated sugar is poured in, the water being stirred briskly while pouring or sifting in, so that the sugar will not settle to the bottom and burn, as such sugar is sometimes liable to do if not stirred. The stirring is kept up till the sugar is mostly dissolved, when the whole is left over the fire until it commences to boil again, when it is skimmed, if any impurities arise. After boiling and skimming, the vessel is set from the fire, when 5 pounds of extracted honey is stirred in, stirring for a moment or two till the whole is thoroughly mixed."

"What do you put in the honey for?"

"Before I used this extracted honey I found that occasionally a batch of syrup would harden in the feeders and comb. This honey proved to be just what was needed, for syrup thus made remained liquid day after day, even when not fed to the bees, and never hardened in the combs, although with this formula the syrup is nearly as thick as the best honey when fed."

"What kind of honey do you use?"

"I first used basswood honey, as I had the most of that; but of late years I have used that which has accumulated from the sun wax-extractor by way of a little honey being in the bits of comb and wax placed there for melting. This is the nicest kind for any feeding, no matter what the color may be, for the heat of the sun so ripens and thickens it that it is always prime for winter stores. But you will please excuse me now, as I have an engagement to meet at this time."

Editorial
By E. R. Root.

In our last issue, p. 712, I inadvertently omitted to give Mr. Swarthmore credit for the wooden cell cup. While ours differed somewhat from the original Swarthmore shells, yet the main principle was just the same.

In emptying out a smoker after a day's work, do not throw out all of the unburned fuel. Leave a little in, as it will ignite more readily than other fuel. The suggestion has been made before, but it will bear repetition.

One of our subscribers says that The Hartford Insurance Co., of Hartford, Ct., one of the strongest companies in the world, will insure bees. It might be well for our readers to find their nearest Hartford agent, and see what arrangement he can make.

The events of the past season show the wisdom of ordering supplies for the coming season early. Discounts are lowest in the fall, beginning with September. If one waits till the season has almost or quite begun he will be almost sure to be disappointed.

Every once in a while a subscriber will write, at this time of the year, asking why his queens do not lay. For the benefit of beginners, perhaps it would be well to state that, right after the honey-flow, Italians especially will ease up on egg-laying—perhaps stop altogether. One need not be surprised if, at any time in September or October, he finds no eggs or brood, especially if the queen is a year or more old.

A correspondent, in referring to the matter of easing the pain of a bee-sting, says it is his practice to blow smoke on the spot just stung. This is a common and well-known practice among old bee-keepers; and, in fact, it is about all that can be done. The heat, to a certain extent, alleviates the pain, and the smoke itself deodorizes the smell of the poison, which seems to infuriate bees otherwise peaceable.

A CHEAP AND EXCELLENT BEE-BRUSH.

In this issue, Mr. Elias Fox tells how to make the best bee-brush in the world, out of an ordinary ten-cent broom. This is one of the best items we have received in many a month, and I hope every one of our subscribers will take time to read this little Head of Grain, even if he reads nothing else.

A GOOD TIME TO REQUEEN.

Now is a good time to supersede inferior or undesirable queens. The untested are now at their lowest price, and the exchange can be made with very little interruption in the work of the colony. Indeed, if a young queen be introduced, displacing an old one, she will probably start egg-laying and give the new colony a fresh impetus, where an old queen might conclude that her job was done for the season, laying few or no eggs.

ENTRANCE-CONTRACTING IN THE FALL.

The time is likely to come on very soon in many localities, even though it may be very warm now, when we shall have cool nights. It is then advisable to contract the entrances of all hives that have been opened for the honey-flow and the flight of numerous bees flying in faster than one can count. Deep entrances are a good thing in their season; but they are a bad thing in cold or cool weather. Bees should be given every possible aid in keeping their brood-nest warm. If they should be rearing any brood, it should be protected.

PHOTOS FOR ILLUSTRATION.

When sending in photos for illustration in Gleanings, be sure they are clear, well timed, and well printed. A hazy, steaky picture, is something we can not use. Pictures for half-tones must be printed a little dark in order to bring out a good tone on the printed page. The process of engraving photos fades out the dark shades, making the picture come out more brilliant. A light-printed picture will fade so much in the process of engraving as to be decidedly weak.

THE WEATHER AND RED CLOVER.

We have been having, till within the last week or so, cool August weather — so cool as to be chilly at night, making a grate fire feel comfortable. At the time of this writing, Aug. 24, the weather is exceptionally warm, and we are "enjoying" a genuine drouth. We have had no heavy rain since the 30th of July, a period of 25 days. Great quantities of goldenrod are out, and there is considerable red clover. There is little or no robbing in our yards; and we attribute this largely to the fact that our bees have been bred to work on red clover. There is enough of it out to keep them busy — at least to keep robbers from nosing around when the hives are open.

SELLING UNFINISHED SECTIONS.

I have before told of our method of disposing of these at the close of the season. As the plan works so admirably, and our newer readers know nothing of it, I have decided to give it again. Unfinished combs, or partly filled ones in sections, will not sell. We cut these out, however, putting one or two of them, according to their weight, into a common wooden butter-dish costing but a fraction of a cent. In some cases we get almost as much, and at others fully as much for these as we would for No. 1 sections. There is something about the chunks of glistening sweetness in its pearly-white comb that attracts the eye. It makes the prospective buyer think of the days of his grandfather or of his father. "That is honey," he exclaims. He buys it once, and buys it again. There is no better seller in our retail honey department than these broken chunks of honey in butter-dishes. If you never tried the plan, get a gross of wooden butter-dishes, and see how quick that kind of goods will move off.

INTRODUCING TWO VIRGINS AT A TIME; A SCHEME OF HASTENING FERTILIZATION.

Our Mr. Geo. W. Phillips, of the apiary, has struck upon an idea which, if not new, is something I have not seen in print. The bane of all queen-rearing yards, or in some, at least, is in getting queens fertilized. It is easy enough to make artificial cups; to graft them with royal jelly and selected larvæ; it is easy enough to get large beautiful ripe peanut-shaped cells; it is easy enough to get the occupants hatched; but getting them fertilized — aye, there's the rub. Mr. Phillips has shortened the process by nearly a half, and at the same time reduced the risk of loss. Well, what is it?

Here is a colony, we will say, that is queenless. Instead of giving it *one* caged virgin, to be released on the candy plan, he gives it to *two* of flying age; but the loose slide protecting the candy is removed, exposing the food in one cage, leaving it in the other cage covered by the slide. The bees will release the queen of the first mentioned. In a day or so she will become fertilized, and go to laying. The other virgin is kept caged in the mean time. As soon as queen No. 1 is laying, she is taken out, and *at the same time* the slide covering the candy to the other cage is set back, the bees release queen No. 2. Before that is done, another virgin is put into the hive, caged with the candy protected. Queen No. 2 is accepted, and ere long begins to lay. She is removed, and the slide of cage No. 3 is slid back, and another virgin put in, and so on the cycle proceeds. The point is here: Both queens while in the hive acquire the scent of the bees and of the comb, so that when one queen is removed the other queen is already introduced except releasing, which the bees do in a few hours, and she again is in a fair way to become the mother of the flock. During the interim between the time the queen is released and when she becomes laying, the queen is acquiring the scent of the colony.

But Mr. Phillips goes one step further. Here is a colony that is not queenless, but we wish to sell the queen in two or three days. He accordingly cages the virgin in the hive, and three days after removes the laying queen, exposes the candy of the caged virgin so the bees can release her, when she is immediately accepted. There, don't you see there is a lapse of only a few hours of actual queenlessness? We will say that, in five hours after the laying queen is removed, the virgin is stalking abroad over the combs, quite at home.

This thing is no experiment. We have been testing it for weeks to see if it would work under all conditions.

If the virgins are hatched in nurseries, and a supply of them is kept on hand, no colony need be queenless more than long enough for the bees to eat out the candy, which I should say would take about five hours as we provision the cages. By this plan one can get almost a double output of queens.

When using the upper-story plan of having three nuclei in a super above wire cloth, one can actually have six virgins to one colony of bees, and the cycle will keep on revolving, one queen being fertilized, we will say, every day. No matter how cool the weather nor how late the season, the strong colony below will keep the bees warm above; then when the season is actually over, withdraw the wire cloth, closing the subsidiary entrances, putting all the bees into one colony.

THE GREAT NATIONAL CONVENTION AT LOS ANGELES.

THE great meeting of the National Bee-keepers' Association took place at Los Angeles, Aug. 18—20, as scheduled. Judging from the newspaper reports which have come, and a photo of the whole convention that have been published in one of the dailies, this was a grand conclave of bee-keepers. The papers say that every State in the Union was represented; but I fear this was a little overdrawn. But I know there were representatives from several of the Eastern States, including, of course, a large number from the Western States. Every thing passed off lovely with one exception, and that was a "hot debate" at one of the sessions. There is no one who attends these bee-conventions who likes to hear and see these "scraps;" and many are inclined to say they do not pay their good dollars and take a long railroad ride to witness any thing of the kind, and that if it is to be repeated they will keep away.

Dr. C. C. Miller and A. I. Root were styled the "Fathers of the Colonies," because both have spent over forty years in the culture of bees and the study of possible improvements. At one of the impromptu receptions for the leading men of the convention, these "old-timers" "were loosened up" to an extent that they told stories on each other. From a clipping from one of the papers I take the following:

> "Over forty years ago," said Dr. Miller as he settled himself in the pillows of the bed, "that man A. I. Root slept in the same bed with me, and kept me awake until midnight telling me how he was going to make a fortune at bee-raising. He had a scheme to tap the maple-trees, and run the sap direct into the bee-hives and supply honey with a maple flavor. Last night, forty years later, he told me of another scheme until I had counted thirteen passing milk-wagons."
>
> Mr. Root flushed quickly at the hearty laugh of the bee-circle, but came back at his accuser. "That is all right. I worked the sap scheme, and can taste that honey now. Dr. Miller was just a drummer for a music-house then, and did not know a drone from a worker. I was just starting up my plant, having sold out a small jewelry shop to go into the business. I had just paid twenty dollars for one Italian queen-bee, and the neighbors thought I was getting daffy on the subject. But I was in the business to stay, and it was not long until I made a record of thirty pounds of honey from one colony in two days. One year I had so much honey that I had to borrow all the wash-tubs in the neighborhood to hold it; and when wash-day came, and my barrels had not yet arrived, I was almost forced to dump the honey into the cistern by the impatient housewives"

But there were at this convention two other veterans, old-timers on the coast, in the persons of J. G. Corey, of cold-blast-smoker fame—one who, aside from his connection with this implement, was a successful and extensive bee-keeper, and Mr. J. S. Harbison, of San Diego, who at one time enjoyed the reputation of being the most extensive bee-keeper in the world; and, indeed, I think it is a little doubtful if to-day the man lives who has produced larger averages or larger crops of honey than this veteran of the Golden State during its early history. The new officers are as follows:

President, J. U. Harris, of Grand Junction, Col.; Vice-president, C. P. Dadant, of Hamilton, Ill.; Secretary, George W. Brodbeck, of Los Angeles, Cal.

No more satisfactory or deserved selections could have been made; and under the leadership of these men the next convention, wherever it may be held, is sure to be a success. Mr. Harris has been one of the leading bee-keepers on the western slopes of the Rockies. He is president and one of the leading members of the Colorado Bee-keepers' Association; and in parliamentary work no better man has ever been put in the place. He is an excellent organizer, a natural and forcible speaker on the floor, and a bee-keeper of no mean repute.

Mr. C. P. Dadant, of foundation fame, is almost too well known to need any introduction to our readers. He and his much-respected father were, perhaps, the best-known of any two bee-keepers in both hemispheres; and his election to the position will be hailed with delight by his many European admirers who have long looked to him and his father as the Gamaliels of modern apiculture.

Mr. G. W. Brodbeck is president of the California State Association—an organization that bids fair to be as successful as the one in Colorado. It has already started out with flying colors. Indeed, with such a president at the head of it, it could hardly be other than a success. My correspondence with Mr. Brodbeck has been of the pleasantest kind; and if I may judge any thing from passing references in letters and in public print he is one of the most popular bee-keepers in California. He, like his fellow-workers, will give the grand old National another upward boost.

There was also present Prof. A. J. Cook, of Claremont College, and formerly of Michigan; and if there is any one man among all the bee-keepers who is at home in convention work, it is Prof. Cook.

Then there were some other men like Mr. J. F. McIntyre, whose beautiful apiary I have shown, and N. E. France, of Wisconsin, General Manager of the Association. Both added much to the interest of this great meeting. Then there was Mr. W. F. Marks, President of the New York State Association; Prof. Frank Benton, of the Department of Agriculture, Washington, D. C., and — well, dozens of others of prominence from all over this great and beautiful country.

I am convinced from the press reports that it will go down in the history of the Association as one of the most notable, interesting, and profitable meetings the Association has ever held, and that Los Angeles is an ideal place for holding a big convention.

GENERAL
CORRESPONDENCE.

READING BEE-JOURNALS.

Importance of being Posted in the Late Developments of One's Business; Comments on Late Items in Gleanings by perhaps the most Extensive Bee-keeper in the World.

BY W. L. COGGSHALL.

Mr. Root:—When I see a good labor-saving device it makes my heart glad; or when some bee-keeper writes an article that gives a shorter cut for doing any thing it pleases me, and I say to myself, "He is a benefactor." To be an up-to-date bee-keeper he must read every thing between the covers of the bee-journals, advertisements and all. Don't skip a thing if you are starting in to make money out of bees. You must know every writer and his address, so if there is any little thing in his article you can send a stamp and find out something that will be worth dollars to you. Write questions so they can be answered by yes or no; then you will get a prompt reply.

Out of the fifteen young men who have worked for me at bees, twelve are still doing so for a living. The most successful ones are farmers' boys who were willing to do any kind of work on the farm. The most successful ones are those who read the most, and talked bees at all times and places.

I wish to emphasize the fact that a desire to talk bees is important. It is better to have it as a hobby if one would succeed. One of my bee-students said to me while going to an apiary:

"In your opinion, will John make a successful bee-keeper?"

"I hardly think he will."

"Why not?"

"Because he is more inclined to read story-books and daily papers."

"Yes, but he does read bee-papers."

"I know it; but he prefers books and daily papers. You ask him if he has seen the scheme of Mr. G. B. Howe, of Black River, N. Y., for setting drawn combs in under the brood-nest to stop swarming; or Mr. W. K. Morrison's article on shallow hives, and he will probably say, 'No; which paper was it in?' and to the last one, by Mr. Morrison, he would say, 'Yes, but I did not think it amounted to much.' *I* thought there were some good points in it; also drawn combs instead of foundation. Lewis, did you notice when I asked John how the second chaff hive from the bee-house did last night (the Robey queen), if it had any more honey than the rest?"

"Yes, I did, and was surprised when John said he did not see any difference. It was always fuller when I emptied it."

"Say, Lewis, did you notice Mr. Greiner's way of wiring frames in last GLEANINGS? What do you think of it?"

"I can wire four to his one, your way, Mr. C., when you wire 100 or 200 wires on a board, and cut them off just the right length."

"Say, Lewis, what did you think of the Hochstein device for putting a comb on a stretcher to uncap it?"

"I could uncap one side before he got it on the stretcher, with one of your little honey-knives that I. L. Schofield gave you."

"They *are* dandy. I wish he had opened his heart and given me a dozen."

"That knife is 28 or 30 years old. He got a blacksmith to make it!"

"Say, Lewis, did you notice what Prof. W. Newell, of College Station, Texas, said?"

"Yes, I did, Mr. C., and also the footnote where the editor recommends rotten wood and dry maple wood. The only reason I can see why the editor recommends hard maple wood is because his customers will burn out more smokers, and then he can sell more — burn up more chaff hives, etc."

"I have a notion to send the editor a sack of my saltpetered burlap, all tied up ready for the smoker—just the right size. It goes off like excelsior, and lasts four times as long, and gives no heat, no sparks, is very light to handle; smoker will last for ever; is ready in twenty seconds. Did you notice in H. G. Osburn's article, page 670, where he said he got 73,000 lbs. from 6000 hives? I think there is a mistake here. I believe he meant to say 600 colonies."

"Mr. C., what do you think of the editor's idea about Cuban honey in American markets?"

"I think he is off. He will have to wait only one or two years before he will see the effect of it. It will surely depress our market. I have run up against it in Philadelphia. Before the war I saw 50,000 lbs. on the wharf at a time. 'We use Cuban honey,' would be the reply; 'it is cheaper. Labor is cheaper there — four to eight dollars a month.'"

"Mr. C., did you see how Mr. Burnett went for New York buckwheaters and the lightning operators for taking honey off before it was capped? What do you think of it?"

"Yes. Not much escapes my eye that is printed in the journals, and I am glad to see you notice all these things."

"Well, it is a good thing for Mr. Burnett that all the lightning operators are all out of the buckwheat State. There is S. A. Niver. He always calls himself a buckwheater. He is right within arm's length of Mr. Burnett."

"I should think he would take Mr. Burnett into one of those dark alleys for a few minutes. But, laying all joking aside, the article will do young bee-keepers a great deal of good if they will only read it and heed it."

West Groton, N. Y.

GOLDEN ITALIANS.

Some Experience with Them; Gentle, but Slow to Enter Sections; Bent on Superseding.

BY J. W. GUYTON, M. D.

I introduced the golden bee into my apiary in 1900. In 1901 I bought another queen, and from these I soon had all of my bees golden except some blacks that I bought. I purchased seven golden queens, and introduced to the blacks. These queens were procured from three different breeders. I also got a third breeding-queen last year. I reared and sold a great many queens from this breed. I find them gentle enough and fair workers, but not as good in some respects as the leather-colored three-banded strain. They are slow to enter sections; they persist in chucking honey in the brood-nest; and if the queen is not prolific enough to keep ahead they crowd her down to a very small space. This is objectionable to the producer of section honey. To me they seem a shade smaller than the three-banded Italians. This I think objectionable, from the fact that they can not carry as much as a larger bee. It is true that they can fly fast, and perhaps because of their diminutive size they may be somewhat swifter on the wing than their larger sisters.

I do not think the queens are, as a rule, as prolific in egg-production as the other strain. However, they have two redeeming features that I can recommend. The first and best is the introduction of an apiary of goldens in a neighborhood of black bees. They seem to fuse more stripes into the black strain because of this predominance in stripes over the regular Italians. When we practical bee-keepers get a cross in our apiaries we detect it at once, and annihilate her queenship soon.

The other feature is their golden color, which makes them so beautiful. They are inviting to the owner of blacks, and he wants to introduce them into his stock; and to do this he will then have to introduce movable-comb hives, which is worth a great deal to apicultural progress.

Last year some of my goldens acted very strangely, and some of them are repeating the same objectionable act this year. They are bent on superseding. It seems to make no difference whether the queen be young or not. I have had several young prolific queens replaced by them, some not over from one to three months old. I kept as many as 100 and over of the three-banded bees over twenty years ago, and don't remember their being nearly so bad as the goldens I now have. Is this out of the usual way, or is it a characteristic of some strains of any strain of bees?

I have noticed that our best or largest honey-producers do not keep the golden strain, although some of our best queen-breeders are boosting them up as hustlers. I will not keep blacks or hybrids any longer than is required to replace them with pure blood.

I should be pleased to have some reports on this strain, as I have not noticed any thing lately about them in the journals I take. Have honey-producers, men who want honey, who tried the goldens, quit them? What are the most potent objections to this strain?

I think that, as a rule, the best of every thing is the cheapest in the long run. If the goldens are not the best all-round bee, I do not want them, and yet I think they are the bees to keep among blacks, as above stated.

Horsemint has been in full bloom over five weeks, and will last ten days or two weeks longer, and my bees have hardly begun to operate in the sections. I know the rainy weather has a great deal to do with this failure. Sumac will be in bloom about the 15th inst., and will last six weeks.

Levita, Texas, July 2.

WIRING, BEE-SIFTER, ETC.

BY F. GREINER.

I was astonished, when reading GLEANINGS for Aug. 1, p. 677, that you credit me with an invention of a frame-wiring device which totally differs from the machines I use and have used for some time. There must be a mistake somewhere. My machines are much more valuable. They work so absolutely automatically that I have not even to pull the lever. All I do to make these machines work after the frames are furnished, and the pieces of wire properly cut, is to operate the communication between my own brain and that of the machine by way of speech, and let my wish be known. My two girls, 10 and 12 years old, then do the work to my entire satisfaction. I would here add, that I use a brood-frame two inches deeper than the regular Langstroth frame; and when I commenced to wire them I used four wires. I have kept reducing the number of wires, and find that two wires are just as good as more. It is much easier to secure the two wires in place, and of proper tension, than the four, and it requires less wire and time to do the wiring, besides saving time in imbedding. It may prove of value to the friends to know this.

After using quite a little brood foundation with young swarms and otherwise, it will seem to me that the most valuable feature of wiring is the securing of comb foundation exactly in the center of the frame where it should be. I am a little doubtful whether this result can be secured with less than two wires; but I shall try just one in a few frames when buckwheat begins to yield honey.

Dr. Miller tells somewhere of late how he dresses when at work in his apiary, and it seems that he has reduced the number of garments to the lowest minimum possible and yet be clad. This would not suit me, nor meet the requirements of Coggshall, I am sure. My bees do not respect a single thickness of covering as would be desirable, and I therefore prefer a light suit of underwear in addition to what the doctor wears. When not too sultry and warm I add another garment, a white jacket, close-fitting at the wrists. I am then prepared for almost any emergency. I don't wish to carry the idea that my bees are extremely vicious; but handling bees as rapidly as possible, one is quite apt to excite their stinging propensities more or less, and it is better to be well protected. To prevent bees from ascending the connections my upper self has with mother earth, and make unpleasant investigation in the space between underwear and outside covering, I incidentally hit on the guards used by bicycle-riders. They are quickly applied, and answer well.

The new pattern of the Corneil smoker I regard as a success. An asbestos covering and wide shield might be added advantageously, and heavy iron substituted in the making of the fire-barrel; but I can not see what better Mr. Arthur C. Miller could want. I don't know that it would be desirous to get up these smokers so they would last a lifetime. I like to have and use a new implement occasionally, and I am glad one of my old Corneils, after five or six years' use in the home yard, where the work is harder on the smoker than in the outyards, begins to show signs of old age.

It is a good plan to clean out the smoker after it has been used hard and while it is still hot. The greater part of the accumulations are then quite soft, and may be scraped off with a suitable tool.

Many of the bee-keepers in Germany know nothing about the convenience of a good smoker, but handle their bees by the use of cigars. This would not suit me, and I notice that even Americans given to smoking tobacco consider it better, more convenient, and more business-like, to use the smoker.

Before closing my communication I wish to speak of a contrivance which might help some bee-keeper somewhere and some time. It is not any thing particularly new. The bee, drone, and queen sifter I wish to describe has been used by the inventor, Mr. Hannemann, of Brazil, in some form or other for a great many years. The way I have constructed it is this: A light open box, the size of a hive-body, was covered at the bottom with a sheet of queen-excluding zinc. A cover was hinged to this box, and also covered by the same material. This device comes handy many times when unexpectedly a swarm is found hanging in a tree. Many, who may not wish to increase their colonies any more, may sometimes be puzzled to know what to do with such a swarm. They might wish to return it. Particularly in case of late swarms, buckwheat swarms, etc., such as would not be able to fix up for winter in good shape, it is always best to return them.

I have come home occasionally from the work in an outyard and found a swarm hanging on a bush, although I practice clipping. In such a case I would at once proceed to shake the cluster of bees into my sifter, and shake and shake till all the bees are in the air except the imprisoned drones and queen or queens. Of course, the bees would soon go back to their old home, and could be located.

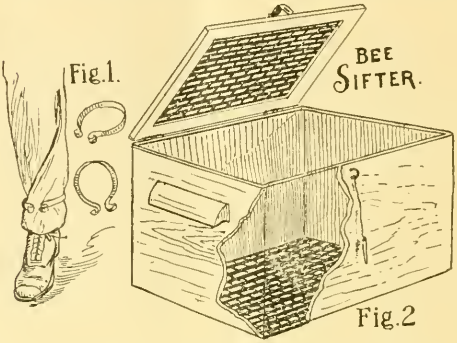


Fig.1.
BEE SIFTER.
Fig.2

The bee-keeper will find this sifter convenient to use at other times. The occasions will present themselves sooner or later, and I need not say any more about it.

Naples, N. Y., Aug. 5.

[The wiring-device and the article credited to you on page 677 we find should have been credited to your brother, G. C. Greiner. Through some mistake the substitution was made. The fact is, both of you have almost the same handwriting, and your general style is much the same.

Your bee-sifter seems to be a good thing. We should like to hear from others who have tried it or who may try it after making one. I have used bicycle pants-guards with a great deal of satisfaction in the manner you have shown. We at one time thought of cataloging and selling them; but we concluded that such a common article of sale, and used so universally, would hardly pay us for giving it space in the catalog.—Ed.]

A THREE-BAND-ITALIAN-BEE CLUB.

Whither Are we Drifting? is there Danger in Pursuing the Fad for Four and Five Yellow Bands?

BY J. M. GIBBS.

I am slow to ask for the space afforded by Gleanings, for fear I shall not be able to write something that will benefit some one somewhere. I have become alarmed at the extent that our queen-breeders are advertising almost all breeds of queens "in their purity." Now, I have been taught by

Gleanings principally, and to some extent by other bee-journals and their correspondents, that the three-banded Italian is the best all-around bee; and from my limited experience with this bee I don't see how it could be improved upon for general good qualities. I must confess that I am afraid of the other foreign races of bees—so much so that I would not now order a queen from a breeder who claims to breed them all "in their purity." I don't care how far apart his apiaries may be. We all know that the mating of queens is very hard to control, and that two races of nearly the same color may be crossed, and the only distinction in the cross might be in the disposition of the bees. I have a neighbor who bought, or at least ordered, Italian queens from a breeder who has given some attention to (foreign) other than Italians, and I am persuaded that he got some mixed blood, from their general appearance, and from what he says of their "mean disposition." I am anxious for the purity of the Italian blood. I am not afraid of the black (native) bee. We can trace him, and weed him out; but I don't want to mix with a color we can not detect, and distinguish from the Italian without consulting their tempers.

I suggest to your readers who may "side" with me that we organize a three-band-Italian-bee club, for the purpose of taking better care of these bees, purifying and improving them, and for the purpose of discouraging the breeding and scattering of other races of bees over the country, thereby endangering the purity of the Italian bee, and jeopardizing the interests of apiarists everywhere.

I do not want to be put down as saying that queen-breeders as a rule are unscrulous enough to breed any thing that they can make money out of; but I know, and we all know, that the world at large is for ever and eternally after something new, and a man is not always to blame for trying to make money out of their mania; but it should not be tolerated in this instance, to the detriment of the world's best—the gentle hustling, three-banded Italian bee.

Statesville, N. C.

ANOTHER HONEY-PLANT.

BY A. C. WATTS.

I wish to add to your list of bee-plants the Palestine olive-bush. It commences to bloom about the first of June, and continues till about the first of September, and is the greatest bee-plant I ever saw. The plant is raised from the seed, and will commence to bloom the second year of its age. I have had the bush three years. I find it does well in East Texas, and I guess it will grow anywhere in the United States. This bush needs no cultivation. You can plant it in the yard or in the corners of the fence. Ir will grow anywhere about the place. My bees are working at the bloom on this bush every morning before it is daylight. If any one wishes to try this bush I have a few seeds that have come on my bush this year. It can be sent by mail.

Nettie, Tex., Aug. 5.

PARTHENOGENESIS.

Three Kinds Explained; a few Wonderful and Interesting Facts in the Reproduction of Certain Kinds of Insect Life.

BY E. F. PHILLIPS.

[The writer of the following article, Mr. E. F. Phillips, is the scientist who spent some weeks with us here in Medina, investigating the subject of parthenogenesis. As I have previously explained to our readers, he is taking a post-graduate course at the University of Pennsylvania, He is thoroughly familiar with all that has been written on the subject of parthenogenesis, notwithstanding that the literature bearing on that interesting subject would make quite a library. He found that there were some phenomena connected with this subject that had never been satisfactorily explained. Desiring to investigate the matter still further, he asked for and received the privilege of coming to Medina, and drawing from our apiaries such material as he might need. At the time of his visit here he was preparing a thesis on parthenogenesis—a paper that will be read by some of the best scientific men in the world. This, or the first draft of it, he was kind enough to read to me, and I was so much interested in it that I asked him to prepare, if he would, one or two articles on the subject, for popular reading, leaving out all scientific terms, and giving us a glimpse into the wonderful realm of nature. This he has done in his first article. Now that you may know something about Mr. Phillips and his qualifications for a work of this kind, let me tell you briefly who and what he is.

He graduated in Allegheny College, Meadville, Pa., in 1890. He taught science in the New Brighton High School for two years He then entered the post-graduate department of the University of Pennsylvania in 1901, holding University scholarships for 1902 and 1903. He was appointed Harrison Fellow in Zoology for 1903 and 1904. In 1902 he began his studies on the subject of parthenogenesis, and during his spare moments is still working on it. He has already finished some work on the compound eye, and at my request he will in later issues tell us something about these wonderful structures in insects.

I secured from Mr Phillips a fine photogravure of von Siebold, and have had the same reproduced for our readers In 1885 this remarkable man died, but his work is living after him.—Ed.]

The occurrence of parthenogenesis in the case of the honey-bee is familiar to most if not all bee-keepers; and the theory of Dzierzon is the basis of many of the most approved methods in practical apiculture. It is of interest to notice that the first case of parthenogenesis which was recorded, and the significance of which was fully realized, was that of the bee. Many other cases have since been observed, and many different manifestations of this same phenomenon have been recorded; but the honor of the first discovery is due to a bee-keeper, Dzierzon. It is the purpose of this paper to give a suggestion of the scope of our knowledge at the present time of this most interesting subject, and to bring before the readers of Gleanings a few facts concerning other animals, especially other insects, which will show the widespread occurrence of parthenogenesis. It was my privilege to spend a few weeks at Medina, in the apiary of The A. I. Root Co., studying the parthenogenesis of the bee, and I esteem it a pleasure to record in Gleanings my appreciation of the never-failing kindness of all with whom I came in contact.

The word "parthenogenesis," in the sense in which it is now used, was first used by Prof. Carl Th. Ernst von Siebold, in his valuable work on the parthenogenesis of butterflies and bees (1856). Before that time no word had been coined to express the production of individuals from an unfertilized egg; and, in fact, very few persons believed that it was ever possible. V. Siebold should be given credit equal to that of Dzierzon for the theory of parthenogenesis, for it was only after the research of years, carried on by the German scientist, that any valuable and acceptable proof was put forward.

In the development of unfertilized eggs into adult animals, but three conditions are possible; and we find in the animal kingdom examples of each. These conditions are, 1, the production of males only; 2, the production of females only; 3, the production of both sexes alike. A variety of names have been given to these different cases by zoologists, but it will not aid in any way to fill up this article with a lot of words of Greek derivation. Let us now take up each of these cases briefly.

1. Very little need be said in this place concerning the production of males from unfertilized eggs, since that is the kind of parthenogenesis with which the readers of Gleanings are probably most familiar. Since Dzierzon first announced his discovery to the world, many persons have attempted to prove that drone eggs are fertilized in the case of eggs laid by a fertile queen; but so thoroughly has the theory been proven by von Siebold, recently by Prof. Weismann and his pupils, Paulck and Petrunkewitsch, and by many others, that but little faith can be put in the observations and conclusions of Perez, Dickel, and others with like theories. We can safely assert that all drones are produced from unfertilized eggs, and all workers and queens from fertilized eggs, since all authentic scientific investigations assert the truth of the statement. The same is true for the males of many other insects, which, with the bee, are included in the group of social *Hymenoptera*. Wasps, hornets, and ants furnish examples of the same kind of parthenogenesis.

2. Examples of females produced from eggs which do not receive the male cell are found in certain small and rare butterflies. It is evident that this form of parthenogenesis gives to a rare species a much better chance of surviving, since it is never necessary for a male and female to meet. In the case of the bee, copulation is necessary for the production of the queen, the individual that has most to do with the propagation of the species; but in these cases copulation is never necessary.

3. The last class of parthenogenesis, that in which both males and females are produced without union of the two sexes, affords some of the most interesting facts in all natural science. Volumes could be written—in fact, volumes have been written—concerning the different ways in which animals having this power behave. The best known and most interesting cases which fall under this group are those of the plant-lice, *Aphides*, and water-fleas. The small wheel animalcules, or rotifers, so abundant in all pools of water, also show this phenomenon frequently. Let us now examine one of the plant-lice more carefully, as an example of this group of our classification. In the spring there hatches from an egg which has lived over winter a *wingless* female plant-louse, and no males are seen at this time of the year. This female soon produces numbers of young offspring which come from their mother in a living, active condition, and these, in turn, soon produce more winged or wingless individuals in the same way—a considerable number of generations appearing during the course of a single summer. Finally, when the unfavorable conditions of autumn come on, there appears a generation consisting of males and females. The individuals of this generation mate, and the females lay fertilized eggs which live over winter and begin the cycle again the following spring. In different kinds of plant-lice this cycle may be modified by the migration of the winged generation to some other species of plant, for each plant has its own kind of plant-louse; and then somewhere else in the cycle another winged generation will appear, and they will all return to the original kind of water-plant.

A cycle similar to this takes place in many of the little water-fleas, which can readily be seen if you dip up in a glass vessel some water from a stagnant pool. If you let this vessel of water stand for a day or two you may see collected on the sides little patches of what appears to be slime, but which on examination with a good lens turns out to be one of the most beautiful objects in all nature—a colony of rotifers. Many of these also have a cycle similar to that which has been so briefly described for the plant-lice.

Besides these cases, parthenogenesis has been described for a couple of beetles, for several flies, for some spiders, for the animals which cause liver-rot in sheep, and doubtfully for several other groups in the animal kingdom. It was also supposed a few years ago that it was not of uncommon occurrence among plants; but of late years it is disproven for most of the supposed cases, and to-day is held for but three plants. It is thus evident that parthenogenesis is of quite common occurrence in many groups of animals besides bees; in fact, the development of males only is probably characteristic of the least modified type of this strange ability.

Philadelphia, Pa.

Carl Theodor v. Siebold

Heads of Grain
from different fields

ANOTHER BEE-BRUSH.

There has been so much said in the journals relative to bee-brushes that I want to add just a few words. It seems to me that there has never been a first-class brush described; and it seems to me that, when we revert to a bunch of weeds, we are not making much advancement, aside from the untidiness of the apiary in having weeds growing so plentifully that we can grab up a handful at every hive. We can all buy the best bee-brush at any store for 10 cts.; and that is, just an ordinary whisk-broom. Tack a sheet of sandpaper on your work-bench or on a board, and take hold of the handle of the whisk-broom with one hand, and with the other one press the end of the brush down flat on the sandpaper, and then pull it across it a few times, and you will have all the stiff points cut down so it will be pliable and soft, and no danger of mutilating the cappings. When brushing, hold the brush flat to the comb. or practically so; and if it gets daubed with honey, dip it in a dish of water, and it will be clean again, and the moistening makes it more pliable. I have one I have used for fifteen years, and it is good for as many more. I always wet it before beginning my day's work. ELIAS FOX.

Hillsboro, Wis., July 9, 1903.

[Your suggestions for making a good bee-brush are excellent. We have been trying the idea of "sandpapering" the broom in the manner you have described, and it works like a charm. The item is worth much to the bee-keepers of the country, and I hope every reader of this journal will see it and act accordingly.—Ed.]

FEEDING BACK EXTRACTED HONEY.

Having never been situated to test this matter fully, I will not attempt to say that any plan can be invariably followed that will give satisfactory results; but in my feeding experiments under various conditions I have observed that bees will build comb more readily, and nearer the way comb is built when nectar is coming in, if not fed too rapidly, and from sources that are nearest approaching their gathering it from the flowers. If the bees are attracted to a feeding-box 100 yards or more from their hive, and the entrance to this feeding-box is contracted so that only so many bees can pass in and out as will convey the usual amount of honey gathered in a day to their hive, they will probably store this honey in boxes to the same advantage as though gathering it from the fields.

Again, the honey must be thinned to the consistency of nectar to have it reach the hive in condition normal to the industrial workings carried on therein. A weight of about 9 lbs. per gallon would come near the consistency of nectar from the flowers. The mixture of honey and water should be of equal temperature when united, or granulation will take place after it is stored in the combs, and seriously depreciate results. If mixed at a little higher temperature than honey gathered from the fields, there is no more liability to granulation than is experienced in the various qualities of honey as naturally brought in, provided the temperatures are equal when mixture is made. B. F. AVERILL.

Howardsville, Va., July 21.

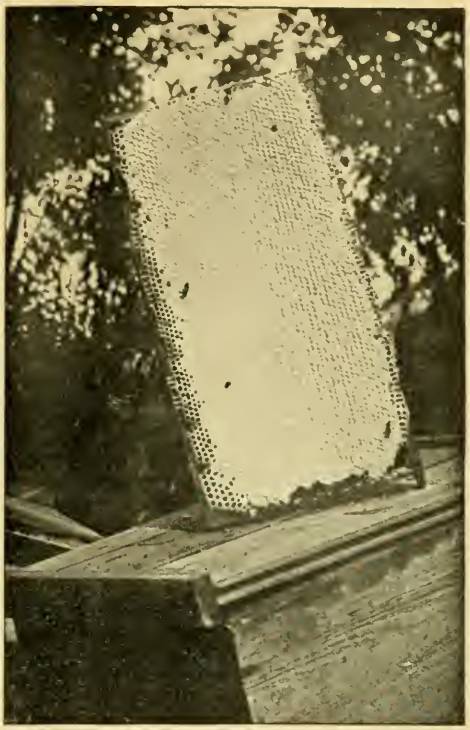
[You have given us a couple of good suggestions, friend A. If it is a fact that fed-back honey *can be* so fed or prepared that it will not granulate in the combs we shall have taken one important step forward. I should be glad to get reports from our subscribers who contemplate feeding back, as to the success of the plan here outlined.—Ed.]

E. F. PHILLIPS.
See article on Parthenogenesis, page 761.

HOFFMAN AND OTHER SELF-SPACING (OR FOOL-PROOF) FRAMES.

Now, this kick is from the other side. Dr. Miller says if none of the Cuban bee-keepers will use the Hoffman frame, why not use the Miller staple-spaced frame? I believe the photo will make a few things clear. You see the comb is built out over the top-bar; and when you uncap you want to cut the comb down to the top-bar; and then the stoppers are very nice to sharpen the knife on. In Cuba the frames are spaced so that seven frames fill a ten-frame extracting-super. Here in Illinois I use six frames in an eight-frame super. The photo is of a frame so spaced.

The other photo is of some old coal-mine dumps. They are composed of the clay that is both over and under the coal-mine. Those dumps have stood gray, and bare of vegetation, for 25 years. Three years ago they were as bare of vegetable life as the day the last whistle was blown and the last cageful of men hoisted and the mine abandoned. Nothing would grow on them until sweet clover got a start, and it is making a rank growth. L. B.



WHY A MILLER STAPLE OR NAIL SPACED FRAME WON'T ANSWER FOR SOME BEE-KEEPERS.

[It is very apparent from the illustration that a metal or nail-spaced frame could not be used satisfactorily for extracting, providing the frames were spaced wider than 1⅜ from center to center. I judge that you find no objection to the use of the Hoffman frame, for the projections are of wood, and can not, therefore, dull the edge of a keen uncapping-knife. Metal-spaced frames are very nice for comb-honey production; but they seem to be very, *very* objectionable for purposes of extracting. If we ever get the uncapping-machine, this objection will be overcome.

It is remarkable that sweet clover can be made to grow where nothing else will take root. I have seen it on the alkali lands of Colorado and California—lands where nothing could exist, except, perhaps, a kind of alkali weed that is absolutely useless to either man or beast; and yet we hear how sweet clover is regarded as a noxious weed by State legislatures and township trustees. Even in this State, mayors are ordered to cut down along municipal road sides all weeds, including sweet clover, and yet there is nothing so good as a soil-binder for loose lands as sweet clover. I should not be surprised if it were worth millions of dollars to railroad companies to prevent the washing-away of embankments, for that is where it does best, on hard yellow clay or other soil where nothing else can grow and take root.

There are big dumps near Cleveland where refuse, cinders, and slag of every sort are thrown; but I have noticed how sweet clover seems to find its way along the edges of these dumps, and it seems to be creeping all over, making the waste land productive of at least some good.—ED.]

SOME OLD COAL-MINE DUMPS THAT HAVE BEEN BARE WASTES FOR 25 YEARS, THAT ARE NOW RECLAIMED BY A RANK GROWTH OF SWEET CLOVER.

BEE-KEEPING IN OKLAHOMA.

I inclose photos of my apiaries here in Oklahoma—a place where it is said bees do no good; but, however, we have had bees here nine years, and expect to stay in the business for some time to come. This has been a hard season on us here. Bees built up

RESIDENCE AND APIARY OF F. W. VAN DE MARK, OKLAHOMA.

on fruit-bloom, and were in fine condition for the persimmon and early sumac; but a killing frost, April 30, killed the persimmon, and the sumac is just now (June 25) blooming. That, and the continual wet and cool weather gave us a "starvation time" here, and some bees, especially new swarms, starve or dwindled till their owners are saying that Oklahoma is no good. I fed my bees along, kept up their strength, and now they are just booming on sweet clover, while sumac, wood sage, alfalfa, and black sumac, are just ready to bloom. My bees on scales are swarming again on 4 lbs. per day, and that is only an average one. People are preparing to sow a great deal of alfalfa here this fall, and on the bottom lands here it yields lots of honey when it is not cut too soon. That, cotton, and black sumac, are our main sources of honey, and will compare favorably with any.

F. W. Van de Mark.

Ripley, Oklahoma.

APIARY AND HONEY-HOUSE OF F. W. VAN DE MARK.

BEE-STINGS — ANOTHER RATIONAL METHOD OF TREATING THEM.

After reading Mr. D. A. McLean's "rational" remedy for bee-stings, and your reply (p. 588), I think your readers will be interested in a very simple and effective remedy which I have tested many times, and know to be good. As soon as possible after being stung, scrape out the sting and clap over the wound the bore of a common key (the old padlock kind), and press it down hard. After holding it for about a minute, remove the key and you will see a tiny drop of yellowish fluid over the wound. The pressure in some way extracts the poison, and that is the end of it.

I think the common-sense explanation of this remedy is that the flesh, being soft, rises up in the tube in the form of a half-sphere, or, in other words, ball-shaped, and so stretches the skin and opens the very small hole that the pressure forces out, or, rather, is able to force out the poison. However, this is what it does do, any way. Try it. P. T. LEMASTER.

Spartanburg, S. C., July 23.

[Your method of treatment apparently confines the poison to a very small area, say of the circle of the keyhole. The pressure closes up the delicate blood-vessels, and the continued pressure doubtless forces the virus out through the exit by which it came. If it is a fact that you can force the poison out again, you will have reduced very much the consequent fever that would result.—ED.]

BEES STORING BELOW BROOD, ETC.

In your reply to my inquiry about placing brood over excluder to prevent swarming, you think bees would not ordinarily store below the brood. I tried a dozen colonies, and nearly all went below; but after reading Dr. Miller's experience in his "Forty Years" with the same plan, I abandoned it.

In the same book he speaks of shaking a colony and placing the brood over an excluder *on the same hive*. Do you think this would have no tendency to promote swarming on building of queen-cells?

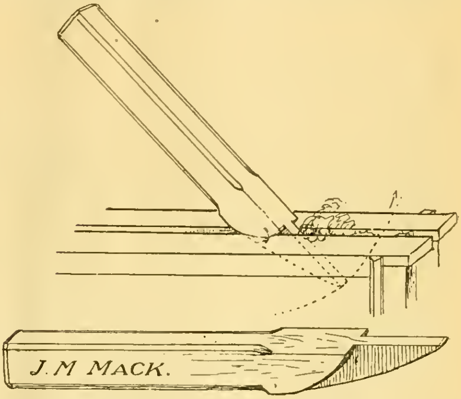
In July, 1902, GLEANINGS you say that having a colony produce a queen of current year's rearing to prevent swarming is not practicable with many colonies. Why could we not unqueen at first settled weather, and then let them rear their own queens for the season? When forced swarms are likely to abscond, how long after forcing is it necessary to watch for them?

Kirkton, Ont. J. H. BURNS.

[Putting the brood over an excluder on the same hive might have a tendency to incite swarming; but I am rather of the opinion it would not have any effect one way or the other, and very possibly it would discourage it. While it is advisable to have young queens in the apiary it would be the height of folly, and a most serious blunder, to unqueen at the beginning of settled warm weather in the spring. If there is any time in the whole year that is important to the growth and possible success of the colony in honey-production, it is in the early spring, when as much brood as possible should be reared in order to bring on bees of the right age for the honey harvest. No, no! if the colony is to be unqueened, do it either during the honey-flow or soon after.—ED.]

MACK'S BURR-COMB TOOL.

I send you by mail an instrument which I use to clean the wax from between the top-bars of brood-frames. It is a daisy for that purpose. I should like to have you put it in a can of water, and take it out to a hive that has wax between the top-bars. Put the point between the frames, and use it as you would a can-opener; and if you do not smile to see the wax peel out in strips ¼ inch wide, and several inches long, and tumble over on the frames, I shall be surprised. I consider it very important, in making comb honey, to see that the spaces between the frames are kept open.



Bonsall, Cal. J. M. MACK.

[We tried your little tool in our bee-yard, and it accomplished exactly what you say it will. It is something that any one can make for himself out of hard wood; but it is a question in my mind whether the accumulation of propolis or bits of wax along the edges of the top-bars does any particular harm. They serve no useful purpose, it is probably true.—ED.]

A COMPANY THAT WILL INSURE BEES.

In your footnote on page 688 you inquire of subscribers about insurance on bees. I have had my bees insured for many years, for $2 on each colony, in the Tompkins County Co-operative Fire Insurance, New York. This company was organized quite a number of years ago with three counties, but has kept adding until it is a large company with perhaps 20 counties.

JOHN MCKEON.

Dryden, N. Y., Aug. 2.

SOLITARY BEES — A RARE SPECIMEN.

For some time I have been watching bees —at least I suppose they are bees—working about two feet from one of my hives. They are about the size of a house-fly, and shiny glass-green all over. They are great pollen-gatherers; and as they are working from morning till night on flowers, I suppose they must also gather honey.

The other day the children were carrying water in bottles; and upon investigation I found they were drowning out bees. They claim to have received some stings; but whether stings or bites, I did not have time to investigate.

The children gathered a bottleful, and I send you some by mail. The specimens sent are twice the size of the bees (?) I have been watching, and have striped bodies, which bees have not, so I decided they must be drones or another kind of insect.

E. N. FRANCIS.

Uvalde, Texas, July 15, 1903.

[This was sent to Prof. Benton, who replies:]

Mr. Root:—I herewith return a letter from Dr. E. N. Francis. The specimens sent by him are known as *Agapostemon meliventris*, a rare and beautiful one of the solitary bees. These bees construct passages in the ground several inches in depth. They collect balls of pollen, which they moisten with honey, and in these they deposit their eggs. They are not known to be injurious, and they doubtless assist in the pollination of blossoms of various useful plants, thereby aiding seed and fruit production. I have taken the liberty of dropping a line to Dr. Francis, together with a frank, and have asked him to send us more perfect specimens, if he can obtain them, for our collection in the National Museum.

FRANK BENTON.

Washington, D. C., July 27, 1903.

POISONING SKUNKS AROUND BEES.

Mr. Root:—I will write you my experience with skunks as enemies of bees, as it may be of benefit to some other bee-keeper. I had noticed that some of my colonies that were light were not building up as fast as they ought to do, but could discover no reason for it until the evening of July 27. Being out near the hives after dark I heard a noise that at first I thought to be a cat scratching on something. The noise continuing, I went to investigate, and found two skunks working at the bees (just as described in the A B C of Bee Culture). I went and borrowed a gun, and succeeded in shooting a foot off from one (found the foot the next morning). As I was afraid to try the remedy mentioned in the A B C, on account of my neighbors' cats, I put some honey in a pan and put strychnine in it, set it out in the yard among the hives after dusk, and brought it in at daylight. The first night I saw one go to the pan. It did not stay long, and did not get far away until it let it be known that it was not feeling very well. The next night, July 29, I put the pan out again. The next morning there were three half-grown skunks found scattered around the neighborhood. The 30th I put the pan out, but no skunks seen, but a strong smell. The 31st, or last night, I put the pan out. This morning there was one found, and trails leading in several directions that were very strongly scented.

It is very evident now that I have lost a good many bees this summer by skunks. If others would keep closer watch, may be they would find the same state of affairs.

J. I. WHITING.

Bolivar, N. Y., Aug. 1.

SERVICEABLE CHEAP BEE-GLOVES.

In reference to your request for some suggestions about gloves, I send you the following: The first few years I had bees I attempted to handle them without gloves; but after being severely punished I decided that discretion is the better part of valor, and I applied to Mr. Selser for a pair of the gloves you advertised; but as the largest pair was too small for me I had to try something else. In one of our large department stores I purchased a pair of laborers' gloves. These are made all in one size (large), of inferior leather, but they are bee-proof. To these I had my wife attach the sleeves of an old white shirt, and intended to put rubber in the upper part to keep them in place. I had occasion to use them before being finished, and found the rubber superfluous. The sleeves being full prevented the bees from reaching, even when they attempted to sting. I have used this arrangement all summer with greatest satisfaction. J. J. LEITENBERGER.

Ridley Park, Pa.

A. I. ROOT AND HIS CUBAN LETTERS.

Mr. A. I. Root:—I have been very much interested in your letters from Cuba. I understand Spanish. I spent some time in a missionary venture in Colombia, South America. Your letters brought back many scenes and events. They are wonderfully true to nature. If you want to see something worth while, just extend your trip next winter to Barranquilla; to Cartagena, the "Great Unwashed," or to Santa Marta, at the foot of the Sierras. Here take a mule (no bicycle in mountain work), and go up to the coffee-plantations. Wm. Crane's place, Agua Dulce, is 2500 ft. up, 17 miles from the sea. He is a Vermont Yankee, and has spent 25 years in that country. Mr. Marshall's place, Bella Vista, is about 3500 ft. up, and you can go up to 7000 feet in a little more than a day—all over good (?) paths, and in sight of the sea. Some of the finest scenery on earth is going to waste here. Just wait until some capitalist finds it; then there will be a great winter resort. It is but a glance from the tropics to the poles; from the great banana-plantations of Rio Frio, the finest on earth, to the eternal snows of the Sierras, 17,000 feet up. The climate is fine, varies between 60 and 80 F. all the year. In sight is the great Magdalena River, a great plain, a swamp, a desert, several lakes, and the ocean. Back to the east is range after range of mountains to the Venezuela border, all unexplored and uninhabited. At one time they supported a dense population of Indians, as is shown by miles of stone-paved paths and dozens of village sites.

The largest trees grow where the villages once stood. What has become of the natives, no one knows. All this and far more is in easy reach of New York. The banana-boats go regularly.

The bees of that country are a study. There is a big one; the common stingless bee, and a little one that much resembles *Apis florea*, as I remember. But I was not so much interested in bees then as now. It seems to me coffee would be a good bee-plant. It blooms in profusion, and twice annually, and there are hundreds of acres of it. They raise some alfalfa near Santa Marta. WILL SIMPSON.

Farmington, Ill., July 21.

IS IT FOUL BROOD OR A NEW DISEASE?

Your comment to my communication, page 683, has been well taken by the Muncy Valley Bee-keepers' Association. The Association held a meeting Saturday, Aug. 1, when GLEANINGS was handed to the secretary, with a request that he read the communication to the Association. After reading it a move was promptly made and carried that we seek State aid in fighting the disease. An effort will now be made to get all the names of bee-keepers of the State, and call a meeting next winter at Williamsport, or some other place near the center of the State, and proceed to ask for legislation for stamping out foul brood and all contagious bee-diseases.

As our legislature does not meet till the winter of 1894 we have plenty of time to work up the matter. Of course, our local organization will continue to fight the disease as heretofore.

I had a pleasant call from Mr. Harry Beaver, who has been in Cuba working for W. L. Coggshall, and mentioned by Rambler in his Cuban writings. He says that our disease is not foul brood or black brood, as he has had experience with both diseases in New York and Cuba. He says it is something that he never saw before, and, in fact, that is my experience, as I had real foul brood in my yard about eight years ago, and I would rather have five colonies affected with foul brood than one with this disease. It spreads very rapidly, and will almost entirely depopulate a colony in about a month or six weeks. It does not attack sealed brood, but is confined to unsealed brood and adult bees. The larva does not become ropy or brown, but remains white in most cases, and just shrivels up in the side of the cell, and in badly affected colonies it has a very putrid smell, not at all like foul brood. The treatment recommended for foul brood does not seem to have much effect on this disease.

Gomly, Pa., Aug. 4. O. C. FULLER.

THE WHITE-CLOVER FLOW IN NEW YORK.

The past white-clover honey-flow has been uncommonly good; but owing to the many cold rainy days during June, just when the flow was at its height, bees had not the chance to improve the opportunity. Days at a time it was so cold that bees hardly left their hives, and consequently the crop gathered is not overly heavy; but the quality, both extracted and in the comb, is good.

I have run the solar wax-extractor with lamp attachment during the past hot days. It turns out wax on a "run."

G. C. GREINER.

La Salle, N. Y., July 16.

BARK OF THE SHAG-BARK HICKORY FOR SMOKER FUEL.

Let me say, for the benefit of the brotherhood, that by far the most satisfactory smoker fuel I have ever tried is the bark of the shag-bark hickory, such as is partly loose, and may be pulled off in strips. It is very durable, gives plenty of smoke, and absolutely no sooty drip. Kindle with dry decayed wood; and when once it is well lighted it never goes out.

Lapeer, Mich. R. L. TAYLOR.

THE SEASON NOT WHOLLY A FAILURE IN AND AROUND IDAHO FALLS.

The season, till within the last month, has been very unfavorable for the bees. We have lost about four-fifths of them in Bingham and Fremont Counties, and hence we are cut short in the honey crop. There will probably be about 50,000 lbs. of honey raised in the two counties. Prices will, therefore, be somewhat higher.

WM. W. SELCK.

Idaho Falls, Ida., July 8.

HONEY CROP IN WESTERN IDAHO.

I can't understand those bees dying in Eastern Idaho—nothing like it here. Crop indications are the best in some years. There will be about two cars of comb and one of extracted in this part and Eastern Oregon, of which local demand will use one car. Prices are the same as last year.

Parma, Idaho. F. R. FOUCH.

Do skunks catch bees? There is something that works around the hives at night.

McLean, N. Y. W. HOAGLIN.

[You will see by the A B C book that skunks are mentioned among the enemies of bees. But their depredations are only slight, and usually a trap will soon finish up their visitations. See previous page.—ED.]

NOTES OF TRAVEL

BY A. I. ROOT

CONTINUED FROM LAST ISSUE.

St. Louis, Mich., near Alma, is a wonderful place, or it has been. Some 25 or 30 years ago its reputation was almost worldwide for its medical springs or wells for the cure of many diseases. I think they called them the magnetic springs, and it was claimed that the water was so strongly charged with magnetism that it would magnetize knives, scissors, etc. If I am correct, these knives and scissors received their magnetism by touching the iron pipe where the water runs out; and any iron pipe driven into the ground possesses this property. Never mind. St. Louis is a thrifty place with its wonderful water-power. We were very pleasantly entertained by Mr. J. N. Harris, who has several hundred colonies of bees in various outapiaries.

From St. Louis we had a very nice road through Mt. Pleasant and on up to Clare, in Clare Co. At Clare it began to look very much as though we were getting out into the wilderness. Sandy plains took the place of good roads; and in order to get through from Clare to Farwell we had to pass through a piece of woods where there were seven gates to open and shut. You may remember I described this state of affairs in Cuba. The land was owned by people who possessed immense farms, and the fence was only around the outside. The traveling public were obliged to open and close the gates or else build fences each side of the road to keep in the stock; and this sandy road twisted around between the trees in a way that seemed as though we should never get anywhere in a straight line. The auto, however, did splendidly, and even made pretty fair speed. At one point, in consequence of some improvement the road was shut up by a field, and we were compelled to go around the field through the woods where almost no vehicle had ever passed; but we made it all right, and got out of the woods. When we arrived at Farwell we were rewarded for our trouble with sandy roads by meeting Mr. T. F. Bingham, the man of smoker fame. Mr. B. is a watchmaker and jeweler, and I believe he still works at his trade more or less. We might expect from this that he would be a careful man and a fine mechanic. His smoker-factory is in the back part of his jewelry store, and he has some very nice machinery for making the celebrated Bingham smokers. Besides this he has a very pretty home, and. I think I may say, one of the finest apiaries in Michigan or any other State. His exceedingly nice and convenient cellar for wintering bees has already been pictured and described in this journal; but the Bingham hive, as he uses it now, deserves more than a passing notice. I believe he has changed the dimensions of his frame from what they were years ago. It is not as shallow as it used to be. The hive is made up of the frames like the Quinby hive and many others of that class; but I think friend Bingham is the man who first originated a hive made up of frames having no outer case. All the others are copies of his idea. Very likely some of the makers did not know of Bingham's hive at the time. The frames are close-fitting end-bars. The first and last frame have a cleated panel to close up the hive. A nail is driven into each of these panels, with the head projecting; then a wire loop something like the letter O is hooked over these nail-heads. To squeeze the frames up together, and make it so it can be handled like a solid hive, a stick of the proper length is put into this wire loop, spreading the sides, making the O in the shape of a diamond. This is all there is to it. These light simple hives are placed one over another; and as friend Bingham doesn't take off his honey till the season is over, he has them piled up, not only three or four high, but sometimes five or six. If you want a sample of the Bingham hive, all you need is one frame and one of the outside panels. Just make more like your sample, and you can pile up hives as fast as you wish, with the wire loops to hold them together. As he makes and uses them, the idea is exceedingly fascinating. It is simplicity itself. Of course, you can use any kind of bottom-board you choose. I did not look particularly in regard to the entrance; but to have the hives made of perfect frames, without any cutting, I would suggest that the entrance be made in the bottom-board. The cover, I think, is simply a cleated board. It projects a little all around the hive, if I am right; and he has a novel idea of shading the hive from the direct sun by attaching a sort of nightgown or mother Hubbard to those projecting covers. His arrangements for comb honey are not particularly different from others in use, except that he has one of the cutest observation glasses I ever saw. One side of the section-case, or super, contains a strip of glass ordinarily concealed from view; but a little door running the whole length of the end-board opens out very easily, and shows you when the bees are at work in the sections. The hinge to this little door is made by driving a slender nail clear down through the door, and all near one corner of the super. Ernest says there is an illustration of this hive in the A B C that shows it very well. I should also like one of the covers with the "night-gown" attached.

Friend Bingham and his good wife almost insisted that we should stay over night, and not go further that day. When we assured him that we couldn't possibly spare the time, he declared we *must* visit the Wilkins sisters. Our older readers will remember the papers that made such a stir in the bee-keeping world years ago, emanating from "Our Clearing," somewhere in the woods of Northern Michigan. The author, Cyula Linswik, remained for a long time unknown to the public except by name. Well, this writer proved to be Miss Lucy A. Wilkins, of Farwell, Clare Co., Mich. Her *nom de plume* was simply made up of the letters in her true name, transposed. Our older readers will remember that I made a visit to said clearing, and wrote up my visit something like 18 years ago. Well, friend Bingham said if I would not stay with him over night we must visit Miss Lettie and Miss Lucy Wilkins, for they are still bee-keepers to some extent. I can't tell you all about our pleasant visit there. The clearing in the woods has, during these years, given place to a beautiful home in the midst of the cleared fields; but the old cottage home that stood in the woods is standing still. It has so much rustic beauty about it that W. Z. Hutchinson recently photographed it and used it for an article to illustrate bee culture in *Country Life in America*. But the article did not tell where the vine-clad cottage, with its bee-hives near, was to be found. Close by said cottage we found Huber and Miss Lettie sampling some of the finest Loudon raspberries I ever saw. When I had eaten so many that I was afraid to eat any more, Miss Lettie offered me another great handful, remarking, laughingly, as she did so, "Why, Mr. Root, you know they won't hurt you if you just *think* they won't." T. B. Terry may have more listeners to what he says about health than he thinks. There is a beautiful driveway leading from the big gate up to the Wilkins home that is quite a contrast to the sand roads around Farwell; and Huber took the sisters up this road and around the large white house on the grassy lawn, with the automobile. Through this region, where the roads are not made passable with either clay or gravel, or both, it is pretty hard getting through the sand in dry weather. If the good people of Farwell should want to go to church with an automobile they might get somewhere near the church, but they would have a very hard task in getting right up to the door unless they should first do something with the sand.

Mr. P. H. Orth, of Sears, Mich., has a very pretty place and a lot of nice children; and, by the way, I was again and again astonished to find such beautiful farms and farm homes all along, even in the northern part of the State, where I had been led to suppose there were only barren pines. Osceola Co., for instance, has some very pretty country places and country roads.

At Evart we had a very nice visit with Mr. Oliver Rhone. His father treated us to ripe strawberries during the last of July. He said he thought they were the Gandy, but he could not be quite sure.

About six miles north of Evart there is a flowing well that throws a volume of water still larger and with greater force than the one mentioned at Mr. Boyden's. Although it would furnish power enough to generate an electric current of considerable value, nothing seems to be doing about it.

Our last stopping-place before running into Traverse City was with Mr. F. B. Cavanagh. The Cavanaghs have a beautiful farm, with enough out-buildings to make it seem almost like a little town, and with a large farm all around them. Although the bee-keeper is a boy of only 22, he already counts his colonies by the hundreds, and has two out-apiaries.

The road to Traverse City was very much better than I anticipated; and the view of Traverse Bay from the hills five or six miles south of the city is one of the finest I ever saw in any land. In fact, I don't know but it equals the celebrated Yumuri Valley described by Humboldt. This road into Traverse City is also very fine. Numerous springs pour their liquid treasures into watering-troughs by the wayside. Oh how I do love to see these watering-places for man and beast! and I love to hear the babbling brooks, and drink of the beautiful soft water in these sandy hills. There may be other water and other springs like those around Grand Traverse Bay, but I am afraid I haven't found them.

OUR HOMES,

BY A. I. ROOT.

They said in their heart, Let us destroy them together: they have burned up all the synagogues of God in the land. . . . O God, how long shall the adversary reproach? shall the enemy blaspheme thy name for ever?—PSALM 74 : 8, 10.

In our recent trip through Michigan I was not only interested in studying the financial prosperity of the country and the country towns, but I was noting with great interest the spirituality of the different towns through which we passed, and especially where we made any sort of stop. I have already mentioned the excellent sermons we listened to on the Sabbath in two of the country towns. The audiences were larger than I expected to see, and the sermons were far above what I expected to hear in such very small towns. We spent one Sabbath, however, in a place where the sentiment of the verses I have chosen as a text was brought vividly to mind. The town contained perhaps three or four hundred inhabitants. There were two hotels, two drygoods stores, two hardware stores, one drugstore, etc., and all seemed to be doing a good business. There were rich farming lands around the town, and large potato-warehouses near the depot for storing the crops of potatoes. There was only one church in the place; and this one church, if the people could be united, and would attend, would be enough. I found on inquiry, however, that the church and every thing pertaining to it was getting to be run down and deserted. The young pastor told me there used to be thirty or forty members; but now there are not more than half a dozen, and these were all women. At the time of our visit he had succeeded in raising money enough to paint the church, and the painter had got the job half done. He had got as high as a short ladder would reach. At this point he plead poverty so effectually, and the need of the money, that the kind-hearted pastor paid him in full for the job, and right at this point the work stopped. The ladders had been leaning against the church for three weeks. But the painter was off somewhere else. I am really afraid the money advanced him, at least some of it, had gone into the flourishing saloon instead of going to his needy wife and family.

The Sunday-school at half-past ten contained perhaps two dozen people, young and old. The services Sunday evening drew a fair-sized audience for such a community. I think I helped to make the audience a little larger than usual by urging the people around town to go to church.

The young minister did not preach; but we had a very good sermon from an old grey-headed veteran. It was much too long, however, and with the communion service we were kept in church a plump two hours. Not only did the audience yawn, but the young minister in his chair behind the aged pastor yawned again and again. I thought I discovered right there one reason why so few people attend church. Monday morning I talked with the pastor about it. Said I, "Surely you have one or more business men in this town who are members of your church?"

"Mr. Root, there is not only not a business man who belongs to *our* church, but there is not a man in business in the whole length of the street who *ever* goes to church at all; and there is not a male member of our church, young or old."

Saturday afternoon I happened to be in one of the hardware stores making a purchase when the church-bell rang. Somebody said it must be a fire. A lot of boys ran out to see where the fire was, and finally the proprietor followed. When I asked where there was a fire, somebody said he guessed the church was on fire, for the church-bell was ringing. After a while the crowd turned back because they learned that it was only a Saturday-afternoon meeting. It was such an unusual thing to have a church meeting during the week the people would have it that it was a fire-bell.

Let me say to the credit of the town, and to the credit of the man, that the busy agent at the railroad depot had recently been installed superintendent of the Sunday-school. When I first came into town I was favorably impressed with the man's appearance. He seemed quiet, faithful, courteous, and accommodating. In fact, he behaved like a Christian, which is something that *all* depot agents do not do. I had quite a little talk with him. His good wife was one of the half-dozen that made up that scanty church-membership. Said I, "Mr. C., I congratulate you, the railroad company you represent, and the people of the town, on the fact that you are superintendent of the Sunday-school. But I wish to ask also why you are not a member of the little struggling band of church-members."

He smiled as he replied, with a shade of sadness in his voice, "Mr. Root, I have often thought of this, and I should like to be enrolled as a member of the church; but how would it look, and what would people say, to see a church-member working at least a great part of every Sunday, as I am obliged to work, to take care of the necessary Sunday duties of my office?"

Now, my reply may not have been strictly orthodox. Perhaps the ministers of the gospel who read this may not agree with me, or may think I erred in judgment. I told him to go straight forward in the path of duty as nearly as he could, and pay no attention to what people might say, and especially to listen to no suggestions of Satan in regard to the matter. Said I, "Perform all necessary duties on Sunday, well and faithfully. Ask your company to excuse you as much as possible from Sunday work. Tell them you are a church member, but that you expect to do necessary Sunday work, exactly as the farmer milks his cows and feeds his stock on Sunday; then stand by your colors, and serve the Lord Jesus Christ as well as you know how, and God will bless and prosper you. Your company will think more of you, and you may be assured they will not let you go if they can help it. Mr. C., will you please tell me how long you have been station agent here for this railroad company?"

His reply came with a modest little smile, "I have been here at this station just about twenty-three years."

A little inquiry revealed the fact that he had been a little *more* than that length of time, I think I may safely say, a faithful servant to the company he represented. I went on:

"My good friend, this is a drinking town. The greater part of the population patronize the saloons. Of course, you do not. Do you know how much the railroad companies value a man, when they get hold of him, who never goes near a saloon? And you know, too, what stringent rules almost all the railway companies are making in regard to this matter of intemperance and saloons."

We were detained two or three days in the town as a matter of business. While we were there, a new saloon was opened. To celebrate the event, the proprietor treated the town. So many tipsy men came around our machine where we had it in pieces making repairs that Huber expressed a fear it would be damaged in spite of us. A big man leaned heavily on a portion of the frame that was unsupported. I expected it to go down with a crash; but I could not get through his dull perceptions the damage he might do us. Huber took the job out of my hands. Said he, "Look here, boys, there are four gallons of gasoline in this machine, and it would be nothing strange at all if your cigars were to set fire to it and blow us all up."

The sleepy crowd caught on to the word "gasoline," and piled out pellmell, and we did not have any more trouble for some time.

You may, perhaps, recollect that the little town of Bingham, near our cabin, is something in the same predicament; and I fear there may be a good many other towns, not only in Michigan, but in Ohio and other States, where the church, Sunday-school, and every thing else, are getting away in the background. I was told they used to have a flourishing Epworth League, but it has gone to pieces. They also once had a temperance organization, and even built a temperance hall, but it is now used for other purposes, and everybody drinks beer—many of the women as well as men. When I exhorted the crowds on the street to come to church or Sunday-school they laughed at me. May be they thought I was behind the times. Well, perhaps I am and was; but I think they will, sooner or later, be compelled to admit that "godliness is profitable," and also that "righteousness exalteth a nation."

What is the trouble? I think there are several reasons for this state of affairs. I did not hear the young pastor preach. He is a good man, but I fear he has become discouraged, and is a little afraid to denounce the Devil in his stronghold in plain terms. This young minister preaches in four different places, and very likely at a meager salary; and it would be nothing strange at all if he has trouble in collecting even that. The town of which I speak should alone pay him a fair salary, and one that would permit him to spend all his time in looking after the spiritual interests of his people. The church is old and dilapidated. This would follow as a matter of consequence. It needs fixing up. It needs to be made attractive; and these people need—at least I think they do—short, sharp, crisp sermons that take hold of the affairs of the present day. They want sermons that strike blows at the wickedness in the very town in which the people live. They need an organization to enforce the laws against the saloons. The spirit of temperance needs waking up. I think I heard somebody say, when this new saloon was opened, there was a little bit of fight about it, but the "wets" predominated, and then celebrated the event. Of course, the free drinks helped them to crow over the way in which they had whipped and downed the "pious" element. What will be the effect on that town? What will be the result on the young men—yes, and on the girls too?

Huber was inclined to be a little rude toward some of the young women who seemed bound to get acquainted. When I remonstrated he replied that he had no patience with forward girls. But I replied, "Huber! Jesus died for fast girls as well as for fast boys. We are not called on to die for them as he did, for he gave up his life on the cross. But we *are* called on, as followers of Christ Jesus to be kind and civil to them, and to do all they can to lead them into better ways.

In another town there was a great stampede of boys and girls and everybody else to the circus. Huber suggested that perhaps I was too severe on circuses—that they are not really the worst things in the world. I replied, "Huber, you may be partly in the right; but, notwithstanding, circuses have more to do with the manufacture of fast girls than almost any other one thing in our land. They set the example, and then they urge the boys and girls to come on and follow them, by every means that modern invention can bring to bear. May God help us."

Now, friends, I wish I could show you a picture of some of the pure bright clean Michigan towns—the towns with beautiful homes, turfy green lawns and cement pavements that outshine any other in the world—towns with schools and churches, able ministers, and bright and intelligent congregations. I should like to show you some of these towns—and thank God there are hundreds of them—and then show by contrast the towns I have been describing in this home paper.

Dear reader, you may not live in Michigan; but what kind of town *do* you live in—a clean town with clean men and women, or do you live in a town where saloons are rampant? where the wets carry the day every time an election is held? where they celebrate their victory with free drinks? where they celebrate the *privilege* they enjoy of leading pure boys and girls down to ruin and shame? It rests with *you*, father and mother, brother and sister. "O God, how long shall the adversary reproach? shall the enemy blaspheme thy name for ever?" As a natural consequence, this town which I have been describing is full of blaspheming men and boys. I will say to their credit they were civil, pleasant, and good-natured; but when they spoke in even the most common conversation, foul inappropriate oaths rolled out of their mouths. They seemed to delight in shocking a stranger; or, to put it a little differently, they seemed to delight in giving a stranger to understand that they were not tied down to any pious order.

Again and again I think of that long sermon—a very good sermon it was, mind you—but there was too much of it; and it had too much theology in it. It was not on a theme that touched the events of the day and interested and got hold of the girls and boys. It made me think of the time when *I* had no interest in nor sympathy for sermons I listened to. It may be we Christian people are greatly at fault. It may be that at least some of us are in the old ruts. If so, may God help us to get out of them. May he help us to make it clear to these younger ones that our work is as sensible and as important as building locomotives, putting up telephone-wires, selling goods, and raising crops. I know our people, the Christian part of them (at least I think I know it), will gladly enlist in works of righteousness rather than in works of iniquity when they can see and be made to understand just where these things are coming out; when they can be made to see that we are all sowing seeds of *some* kind. Shall we busy ourselves in sowing seeds of docks and thistles when we might as well be sowing seeds that will produce crops of golden grain, sheaves fit for the Master?

Let me close by saying once more, in the language of our text, "O God, how long shall the adversary reproach? shall the enemy blaspheme thy name for ever?"

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Having added extensively to our queen-rearing plants in the North and the South we can furnish any number of queens on short notice.

Carniolans. Very prolific, hardy, gentlest bees known. Great comb-builders. Sealed combs of a snowy whiteness. A worker on red clover.

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How Moore's strain of Italians roll in honey down in Texas.

Hutto, Tex., Nov. 19, 1902.

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HENRY SCHMIDT.

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W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens is a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

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Are those reared by The BEE & HONEY CO., Will Atchley, Manager. We breed six distinct races in their purity, from 6 to 35 miles apart, queens ready to go now. We make a specialty of one, two, and three frame nuclei and queens in large lots. Write for prices, they will astonish you. Untested queens of either race, 75c each; $4.25 for six; $8.00 per dozen. Tested, $1.50 to $3.00 each. Breeders, the best that money can buy, $5 00 each. We guarantee safe arrival and perfect satisfaction. Address all orders to

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are discussed by such mem as R. L. Taylor, H R. Boardman, M. A. Gill and Jas. A. Green, in the July and August issues of the Bee-Keepers' Review.

Send ten cents for these two issues, and another different issue will be sent with them, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the holder to the Review one year for **only 90 cts.**

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The A. I. Root Co. tells us that our stock is extra fine, while the editor of the *American Bee Journal* says that he has good reports from our stock, from time to time. Dr. J. L. Gandy, of Humboldt, Nebr., says that he secured over 400 pounds of honey (mostly comb), from single colonies containing our queens.

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P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

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Price of Queens After July First.

	1	6	12
Selected	$ 75	$4 00	$7 00
Tested	1 00	5 00	9 00
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Extra Selected Tested—the best that money can buy	3 00		
Two-frame Nuclei, no Queen	2 00		

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

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(Successors to O. P. Hyde & Son.)

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Hard Record to Beat.

My father bought an Adel queen in 1902. Her colony and swarm from it filled twelve 2½-lb. supers this year, 1903. *I am ready to back up this statement:*

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I got 210 lbs. honey from one Adel colony. Another Adel colony has filled 8 supers and I expect 2 more supers this season from them.

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One tested queen, $1.00. Selected tested breeding queen and my new book on queen-rearing, $1.50.

I have had 40 years' experience in queen-rearing.

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..Very Satisfactory..

The four dozen queens I got of you last year are very satisfactory, being good honey-gatherers, and gentle, and finely marked.

Chas. Stewart,
Sammonsville, N. Y.
June 19, 1903. State Bee Inspector, 3rd Div.

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Full colonies, $4.00; three frames with queen, $2.25; two frames with queen $2.00; one frame, $1.50; queen, $1.00. **Mrs. A. A. Simpson, Swarts, Pa.**

100 = Mounted = Queen=cells

and one sample of the Stanley Cell-protector or Introducing-cage, for 70 cents postpaid.

Arthur Stanley, Dixon, Illinois.

CARTONS FOR HONEY Wanted to introduce the best, most practical, lowest-price carton for honey, all things considered; costs nothing. We have wholesaled honey in this city for 30 years. We have seen no honey-carton equal to this. Send us five two-cent stamps, and we will send you sample, together with explanation, and some practical suggestions regarding marketing honey to best advantage; also live poultry. We originated and introduced the now popular one-pound section.

Established in 1870. H. R. WRIGHT.
Wholesale commission. Albany, N. Y.

FOR SALE---Having land of good quality on north coast of this island, I want to sell it (7000 acres), in parcels or all together. Land to be sold from $5 to $8 per acre. I want a married couple to start bee-keeping and fruit-raising on half shares. I give them all that they need to begin with.

J. McCreight Thain,
Sagua la Grande, Cuba.

Root's Goods in Central Michigan!

Sold at their prices. Present given with each order amounting to $2 or over. List sent free.

W. D. Soper, Rural Route No. 3, Jackson Michigan.

PAGE HOG FENCE

holds the whole litter. It's closer woven.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

DON'T FREEZE, but come to Florida, the land of sunshine, and buy a home among the orange groves and bees It doesn't take a fortune to do so. Write for particulars.

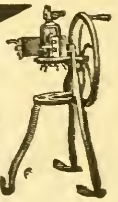
M. W Shepard,
Hollister, Fla.

Cuba.

If you are interested in Cuba and want the truth about it, subscribe for the

HAVANA POST,

the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).



AN EGG MAKER

Nothing equals green cut bone for hens. Any one can cut it with

Mann's Latest Model Bone Cutter.

Open hopper. Automatic feed. **10 Days' Free Trial.** No pay until you're satisfied. If you don't like it, return at our expense. Isn't this better for you than to pay for a machine you never tried? Cat'g free. **F. W. MANN CO.,** Box 37, Milford, Mass.

BUY YOUR TREES AT WHOLESALE PRICES DIRECT FROM The GROWER

Full Line. Best Stock. Low Prices.
Write for FREE Catalog.
GROVER NURSERY CO., ROCHESTER, N. Y.

4,000,000 PEACH TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago, Ills.

Apiary for Sale.

Owing to my age I have decided to sell my yard of 16 colonies, with extra hives, supplies, etc. Price only $75 for the entire outfit. Some colonies have made 75 lbs. each, comb honey, this season. A bargain. Call on or address

R. L. Holman, Springfield, O.

Sections, Shipping Cases, Honey Cases,

and every thing necessary for the bee keeper.

FINE ITALIAN QUEENS.

Prompt shipping. Catalog Free.

C. M. Scott & Co., Indianapolis, Ind.

1004 East Washington Street.

FOR SALE.—75 colonies Italian bees in 10-frame hives; also 100 colonies in 8-frame hives at $4.50 each; in lots of 10, $4.00 each.

F A Gray,
Redwood Falls, Minn.

In the previous issue, a typographical error made me say, "In lots of 10, $1.00 each." It should read $4.00 each.

FOR SALE.—150 colonies of Italian bees in good hives.
D. J. Richardson, Valley Center, San D. Co., Cal.

THE NORTH-WESTERN LINE
C.&N.W.RY

$30
Colorado
And Return.

First class to Denver, Colorado Springs, and Pueblo from Chicago, daily, throughout the summer, good returning October 31. The

Colorado Special

fast daily train, one night to Denver from Chicago and the central States (only two nights enroute from the Atlantic seaboard), leaves Chicago daily 6:30 P. M.

A second daily train leaves Chicago 11:30 P. M. Personally conducted excursions in tourist sleeping-cars.

For sleeping-car reservations, descriptive pamphlet, "Colorado Illustrated," and full particulars, address

A. F. CLEVELAND, 234 Superior St., Cleveland, O.

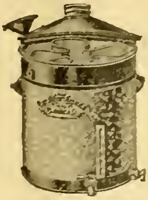
FARM LANDS

NET $1528.75 FROM ONE ACRE.

one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

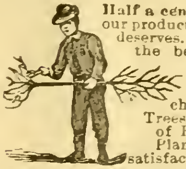
Splendid Location for Bee-keepers.



THE LUCKY "4-LEAF CLOVER"

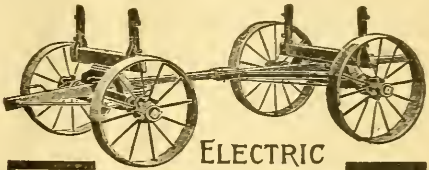
Plymouth Cream Extractor is the CREAM of them all. Inner can quickly removable; water all around and under milk; has far greater cooling surface than any other. No water required 5 months in year. Special air chamber with ventilator. New and original faucet, impossible to leak or sour. *Express charges prepaid.* Catalogue free.

Plymouth Cream Separator Compaoy, Plymouth, Ohio.



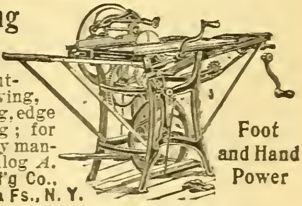
Half a century of fair dealing has given our products that prominence which merit deserves. We still offer everything of the best for **Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse.** Catalogue No. 1, 112 pages, free to purchasers of Fruit and Ornamental Trees. No. 3, 64 pages, free to buyers of Holland Bulbs and Greenhouse Plants. Try us; we guarantee satisfaction. Correspondence solicited.

THE STORRS & HARRISON CO.,
PAINESVILLE, OHIO.



ELECTRIC
Handy Farm Wagons
make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous **Electric Steel Wheels**, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

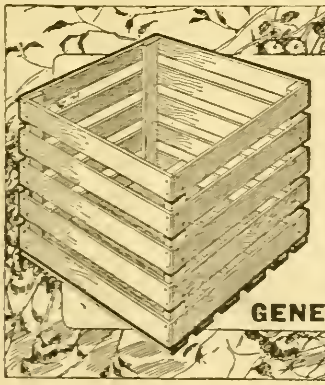
ELECTRIC WHEEL CO., BOX 95, QUINCY, ILL.



Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power



VENTILATED BUSHEL CRATES

These crates are the most convenient things that can be used on the farm. Apples, potatoes and other fruits and vegetables can be gathered, stored and taken to market in them without rehandling. They allow air to circulate freely through them. Our crates cost 8 cents each ready to nail together. Made of best material and with decent care will last a lifetime. Can be "nested" together to store away. Our illustrated booklet No. 12 telling all about them free.

GENEVA COOPERAGE CO., GENEVA, O.

Queens from Jamaica

ANY DAY IN THE YEAR AT THE FOLLOWING PRICES:

Untested, 66c; tested, $1.00; select tested, $1 50; breeders, $2 50. Our queens are reared from the very finest strains. Please write your address plainly when ordering. Address

Geo. W. Phillips, Sav-La-Mar P. O., Jamaica, W. I.

When you want Queens that please, and want them

By Return Mail,

join the crowd and send here where the spring rush is now over. I can guarantee them to leave promptly from now on, and arrive safe. *Best Honey Strains only* are bred from Goldens, Carniolans, leather-colored Italians. 75c each, or $7.50 per dozen; tested, $1.00 each, or $10.00 per dozen.

George J. Vande Vord, Daytona, Fla.

Warranted Queens.

L. H. Robey, Dear Sir:—Enclosed find one dollar and twenty cents ($1 20) for which you will please send me two (2) warranted queens. The queens you sent me last year have proved to be excellent. I introduced one into a three-frame nucleus on Aug. 22, 1902, and on Aug. 25, 1903, I took 228 lbs. of comb honey, leaving 10 Hoffman frames in the brood-chamber for the coming winter; that is very good for a nucleus. Be sure to give my street number, 525 Dakota St., for the queens you sent me last year were carried to another Wm. Zimmerman, and I did not get them until the next day. Wm Zimmerman.

San Antonio, Texas.

Warranted queens, 60 cts. each in any quantity. Satisfaction guaranteed or money refunded.

L. H ROBEY, WORTHINGTON, W. VA.

Circular Free.

Queens == 1903 == Queens.

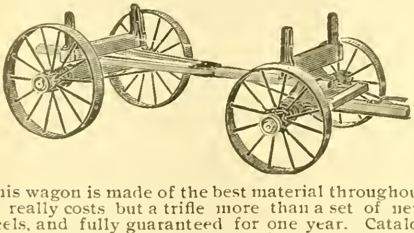
We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos. are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1.00 each; $5.00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill. who will also furnish metal wheels at low prices made any size and width of tire to fit any axle.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

SPECIAL NOTICE
Special Notices
By Our Business Manager.

EARLY-ORDER DISCOUNTS.

Applying to the new prices in effect this date, we offer the following discounts for early orders. There is a great gain to those who are forehanded, and order their next season's requirements early in the fall or winter over the one who waits till the eleventh hour in the spring before placing his order. He can get his hives nailed and painted, and filled with fixtures; during the leisure time in winter, prepare supers, sections, and even shipping-cases, in readiness for the busy months of spring. He has the goods on hand when needed, and can take full advantage of the honey-flow when it comes. We also allow a discount that will more than pay the interest on his money invested in the supplies a few months before they are actually needed. Many passed an unfavorable experience through the past season in being disappointed in getting goods promptly when most needed in the spring. Manufacturers were crowded beyond their capacity to supply the goods needed with promptness, in spite of unusual preparation. For these and other reasons which might be stated we urge every one, as far as possible, to place orders early, and profit by the following discounts

On orders accompanied by remittance received during September, deduct 7 per cent; during October, deduct 6 per cent; November, 5 per cent; December, 4 per cent; January, 3 per cent; February, 2 per cent. After February, no discount. This applies to all general orders for next season's use at regular prices, with the following exceptions:

Glass and tin honey-packages of all kinds; scales, books, burlap, rubber stamps, labels, wheelbarrows, lawn-mowers, bushel boxes, bees and queens, and all goods listed in special catalogs and circulars other than our general catalog of bee-keepers' supplies. The discount is intended to apply mainly to hives, frames, foundation, sections, section-holders, separators, fences, shipping-cases, extractors, smokers, and other bee-keepers' requisites too numerous to mention, listed in our catalog before page 26, including pages 28, 35, and 36.

Sept. 1, 1903.

TABLE OF PRICES OF COMPLETE HIVES.

If you should want a different cover or bottom than the one listed in the regular combination, simply substitute the letter which designates the cover or bottom wanted in the combination or hive ordered. For instance, all the hives are regularly furnished with Danz. (A) bottom and Excelsior (E) cover. If you want the B bottom and Gable cover use the letters BG. instead of AE. In like manner any change desired may be indicated.

In ordering use the designating number or letter which follows on the same line the description of the hive or part wanted. Carry out the price extended on the same line under the quantity required as given.	Designating Letter.	Nailed and Painted.	EIGHT-FRAME KD IN FLAT. PRICE IN LOTS OF				Weight of ten in lbs.	Nailed and Painted.	TEN-FRAME KD IN FLAT PRICE IN LOTS OF				Weight of ten in lbs.
			1	5	10	25			1	5	10	25	
1-story hive, no super or upper story—Fig. 504		$ c.					Lbs	$ c.					Lbs
Without foundation starters...	AE5	1 80	1 35	6 25	11 50	27 00	200	1 90	1 45	6 75	12 60	29 50	215
With foundation for 1-inch starters	AE6	1 90	1 45	6 50	12 00	28 25	200	2 00	1 55	7 00	13 10	30 75	215
1½-story hive for extracted honey—Fig. 510													
Without foundation starters	AE58	2 45	1 85	8 50	15 50	36 25	270	2 60	2 00	9 25	17 00	40 00	295
With foundation for 1-inch starters	AE69	2 65	2 00	9 00	16 50	38 75	270	2 80	2 15	9 75	18 00	42 50	295
2-story hive for extracted honey, see Fig. 511													
Without foundation starters	AE55	2 80	2 15	1000	18 50	43 25	320	2 95	2 30	1075	20 00	47 00	350
With foundation for 1-inch starters	AE66	3 00	2 30	1050	19 50	45 75	320	3 15	2 45	1125	21 00	49 50	350
1½-story hive for comb honey, no sections or starters, for 4¼×1⅞ beeway sections...	AE52S	2 45	1 85	8 50	15 50	3 25	270	2 60	2 00	9 25	17 00	40 00	290
For 4¼×1½ plain sections	AE52P						260						285
For 3⅝×5×1½ plain sections	AE52I						275						295
For 1×5×1⅜ plain sections in Danz. super	AE52M	2 60	2 00	9 25	17 00	40 00	290	2 75	2 15	1000	18 50	43 75	315
1½-story hive for comb honey, complete with sections and foundation for 1-inch starters													
With 4¼×1⅞ beeway sections—Fig 507	AE64S	2 85	2 15	9 75	18 00	42 00	280	3 00	2 30	1050	19 50	45 75	305
With 4¼×1½ plain sections—Fig. 506	AE64P						270						295
With 3⅝×5×1½ plain sections	AE64I						285						310
With 4×5×1⅜ plain sections—Fig. 503	AE64M	3 00	2 0	1050	19 50	45 75	310	3 15	2 45	1125	21 00	19 50	335
2-story hive for comb honey without sections or foundation starters.													
For 4¼×1⅞ beeway sections	AE522S	3 10	2 35	1075	19 50	45 50	340	3 30	2 55	1175	21 50	50 50	365
For 4¼×1½ plain sections	AE522P						320						355
For 3⅝×5×1½ plain sections	AE522I						350						375
For 1x5x1⅜ plain sections in Danz. supers	AE522M	3 40	2 65	1225	22 50	53 00	360	3 60	2 85	1325	24 50	58 00	415
2-story hive for comb honey with sections and foundation for 1-inch starters:													
With 4¼x1⅞ beeway sections	AE644S	3 80	2 85	1300	24 00	55 75	360	4 00	3 00	1400	26 00	60 75	395
With 4¼x1½ plain sections	AE644P						340						375
With 3⅝x5x1½ plain sections	AE644I						370						405
With 4x5x1⅜ plain sections in Dz. supers	AE644M	4 10	3 15	1450	27 00	63 25	420	4 30	3 30	1550	29 00	68 25	455
BOTTOMS, COVERS, SUPERS, and HIVE PARTS													
Danz. bottom or floor board with rim—Fig. 501	A	35	22	1 00	1 90	4 50	35	37	24	1 10	2 10	5 00	37
Bottom, ⅞-in. boards, reversible—Fig. 405	B						50						54
Combined bottom and stand—Fig. 303	C	45	33	1 50	2 70	6 25	40	48	36	1 65	3 00	7 00	43
Danz. metal-bound flat cover, made—Fig. 500	D						42						45
Excelsior cover, shown in Fig. 301	E						47						52
Flat cover, double, paper covered—Fig. 402	F						47						52
Gable cover, ventilated, shown Fig. 404	G						53						60
Hive-stand to use with A or B bottom—Fig 600	H	25	15	70	1 30	3 00	45	25	15	70	1 30	3 00	48
Metal-roofed telescope cap, 11¼ inches deep, to fit over hive and super	K	80	62	3 00	5 70	13 25	75	85	65	3 10	6 00	11 00	80
Metal-bound super-cover, ⅜ inch thick, to use with telescope cap		15	15	75	1 30	3 00	15	15	15	75	1 30	3 00	15
Empty hive body, 9½ deep, with tin rabbets		55	45	2 00	3 80	9 00	80	58	48	2 10	4 00	9 50	85
Body with frames only—no division-board								90	85	4 00	7 50	17 50	125
Body with frames and division-board	5	1 00	80	3 75	7 00	16 25	120	1 05	95	4 25	8 00	18 75	130
Body with frames, inch foundation-starters, and division board	6	1 10	90	4 00	7 50	17 50	120	1 15	80	3 75	6 90	16 25	130
Body with frames wired, full sheets found'n	7	1 90	1 40	6 75	13 00	30 00	125	2 05	1 60	7 75	15 00	35 00	140
Jumbo body with frames and division-board	J5	1 10	90	4 25	8 00	18 75	140	1 15	95	4 50	8 50	20 00	160
Jumbo body with frames and inch fdn. start's	J6	1 20	1 00	4 50	8 50	20 00	140	1 25	1 05	4 75	9 00	21 25	160
Shallow super empty with flat tins only		35	23	1 00	1 90	4 50	40	37	24	1 05	2 00	4 75	42
With section-holders, separaters, followers, and springs for 4¼ beeway sections	2S	65	50	2 25	4 00	9 25	70	70	55	2 50	4 50	10 50	75
With plain section-holders, fences, bevel cleats, and springs for 4¼ plain sections	2P						60						70
2S super with 1⅞ beeway sections added.	3S	85	65	3 00	5 50	12 50	80	90	70	3 25	6 00	13 75	90
2P super with 1½ plain sections	3P						70						80
2S with beeway sections, starters—Fig. 8	4S	95	70	3 25	6 00	13 75	80	1 00	75	3 50	6 50	15 00	90
2P with plain sections, starters—Fig. 308	4P						70						80
Deep Supers, empty with flat tins only		35	25	1 05	2 00	4 75	45	38	26	1 10	2 10	5 00	48
With slats and I fences	2I	65	50	2 25	4 00	9 25	75	70	55	2 50	4 50	10 50	80
With slats and L fences	2L						75						
2I with 3⅝x5x1½ plain sections	3I	85	65	3 00	5 50	12 50	85	90	70	3 25	6 00	13 75	95
2L with 1x5x1⅜ plain sections	3L						85						
2I with sections and inch found. starters	4I	95	70	3 25	6 00	13 75	85	1 00	75	3 50	6 50	15 00	95
2L with sections and inch found. starters	4L						85						
With shallow ext.-frames and div.-board	8	65	50	2 25	4 00	9 25	70	70	55	2 50	4 50	10 50	80
With frames and inch foundation starters	9	75	60	2 50	4 50	10 50	70	80	60	2 75	5 00	11 75	80
With hanger-cleats, Danz. sect'n-holders, M fences, springs, cleats, and wedges	2M	80	65	3 00	5 50	13 00	90	85	70	3 25	6 00	14 25	100
2M with 4x5x1⅜ plain sections	3M	1 00	80	3 75	7 00	16 25	110	1 05	85	4 00	7 50	17 50	120
2M with sections, inch starters, Fig. 409	4M	1 10	85	4 00	7 50	17 50	110	1 15	90	4 25	8 00	18 75	120

The L super with 4x5x1⅜ plain sections is furnished only in 8-frame size. The M. super, 8 frame size, has only six fences, as there is no room for the two outside fences used in all other supers taking fences, except as it is made ⅝ of an inch wider. Hives with deep brood-chambers, or Jumbo size, will be supplied in any of the combinations at 10 cents each extra, either 8 or 10 frame. C combined bottom and stand will be substituted at 5 cnets each extra. Frames in hives may be pierced and wire included at 2 cents per hive extra. If wanted add PW after the hive number, add 10 cents for each crate of five. Ten frames fill a 10-frame hive without division-board.

Table of Prices of Dovetailed Chaff Hives.	Designating Letter.	EIGHT-FRAME Nailed and Painted.	EIGHT-FRAME KD IN FLAT PRICE IN LOTS OF 1	5	10	25	Weight of Ten	TEN-FRAME Nail'd and Painted.	TEN-FRAME KD IN FLAT PRICE IN LOTS OF 1	5	10	25	Weight of Ten.
-story Chaff Hive, no super or upper story, with tel. and super cover and chaff-tray.													
Without foundation starters	YW5	3 25	2 70	12 25	23 00	54 50	400	3 50	2 80	12 75	21 10	57 00	410
With foundation for 1-inch starters	YW6	3 45	2 80	12 50	23 50	55 75	400	3 60	2 90	13 00	24 60	58 25	410
1½-story Chaff Hive for comb honey without sections or foundation starters													
For 4¼x4¼x1⅞ beeway sections	YW52S						470						490
For 4¼x4¼x1½ plain sections	YW52P	4 00	3 20	14 50	27 00	63 75	460	4 15	3 35	15 25	28 50	67 50	480
For 3⅝x5x1½ plain sections	YW52I						475						495
For 4x5x1⅜ plain sections, in D. super	YW52M	4 15	3 35	15 25	28 50	67 50	490	4 30	3 50	16 00	30 00	71 25	525
Same with sections and foundation starters													
With 4¼x4¼x1⅞ beeway sections	YW64S						480						515
With 4¼x4¼x1½ plain sections	YW64P	4 40	3 50	15 75	29 50	69 50	470	4 55	3 65	16 50	31 00	73 25	505
With 3⅝x5x1½ plain sections	PW64I						485						520
With 4x5x1⅜ plain sections, in D. super	YW64M	4 55	3 65	16 50	31 00	73 25	510	4 70	3 80	17 25	32 50	77 50	550
Telescope cover, 7 inches deep	Y	75	60	2 75	5 00	12 00	100	80	63	2 90	5 30	12 75	105
Deep Telescope cover, 11 inches deep	X	85	70	3 25	6 00	14 50	120	90	73	3 40	6 30	15 25	125
Chaff-tray		30	25	1 10	2 00	4 50	30	30	25	1 10	2 00	4 50	30
Super-cover		15	15	70	1 30	3 00	15	15	15	70	1 30	3 00	15
Chaff-hive body with tight bottom	W	1 70	1 35	6 00	11 80	27 50	200	1 75	1 40	6 15	12 00	28 75	205
Chaff-hive body with frames and div.-board	W5	2 15	1 70	7 75	15 00	34 00	240	2 25	1 80	8 10	15 50	36 75	250
Chaff-hive body with frames and starters	W6	2 25	1 80	8 00	15 50	36 25	210	2 35	1 90	8 60	16 00	38 00	250
Winter-case body with padded sticks	Z	75	60	2 75	5 00	12 00	80	80	62	2 85	5 20	12 25	85
Winter-case with 7 inch cover complete	YZ	1 50	1 20	5 50	10 00	24 00	180	1 60	1 25	6 75	10 50	25 00	190

Price List of Danzenbaker Hives and Parts. DESCRIPTION OF PARTS.	Designating letter or number.	Nailed Painted	PRICE IN FLAT IN LOTS OF 1	5	10	25	Weight of Ten.
Adjustable bottom, floor made up	A	37	24	1 10	2 10	5 00	37
Metal-bound cover, made up	D	48	36	1 65	3 00	7 00	45
Metal-roofed telescope, cap 11¼ inches deep	K	85	65	3 10	6 00	14 00	80
Metal-bound super-cover ⅜ inch thick, to be used with cap		15	15	75	1 30	3 00	15
Danzenbaker hive-body with 10 frames and follower	D5	1 00	80	3 75	7 00	16 25	120
The same as D5 with foundation for 1-inch starters added	D6	1 10	90	4 00	7 50	17 50	120
One-story hive consisting of cover, bottom, body, with frames and follo	D. AD5	1 85	1 40	6 50	12 00	28 25	200
The same as AD5 with foundation for 1-inch starters	D. AD6	1 95	1 50	6 75	12 50	29 50	200
Danz. super with 8 section-holders, 9 fences, 3 springs, without sections	2M	85	70	3 25	6 00	14 25	100
Danzenbaker super, same as 2M with 32 4x5 plain sections	3M	1 05	85	4 00	7 50	17 50	120
Same as 3M with foundation for 1-inch starters	4M	1 15	90	4 25	8 00	18 75	120
1½-story Danzenbaker hive complete without sections and starters	D. AD52M	2 70	2 10	9 75	18 00	42 50	300
1½ story Danzenbaker hive complete with sections and starters	D. AD64M	3 10	2 40	11 00	20 50	48 25	320
Either above hives with telesc. cap, and super-cover instead of flat, add		50	45	2 20	4 30	10 00	

Danz. brood frames. $2.50 per 100; section-holders, $2.25 per 100; hanger cleats, 3c each; $2.50 per 100.

SHIPPING-CASES. NAME AND SIZE OF CASE.	Nailed, each.	Price complete including 3-inch glass 1 side, nails, & paper, in flat. 1	10	100	With 2-inch glass instead of 3, per 100.	Without the glass per 100.	Wt. per 100—in lbs.
12-in. 4-row for 4¼ s'n	30	25	2 00	$18 00	$17 00	$16 00	450
10-in. 4-row "	30	25	2 00	17 00	16 00	15 00	400
12-in. 2-row "	20	15	1 30	11 00	10 50	10 00	225
10-in. 2-row "	20	15	1 20	10 50	10 00	9 50	200
16-in. 2-row "	25	18	1 50	12 00	11 50	11 00	300
8-in. 3-row "	20	15	1 30	11 50	10 75	10 00	225
6¼-in. 3-row "	20	15	1 20	11 00	10 25	9 50	200
7⅛-in. 4-row for 4x5...	30	22	1 80	16 00		14 00	300
7⅛-in. 3-row " ...	25	20	1 40	12 00		10 50	250
9¼-in. 4-row for 3⅝x5	30	22	1 80	16 00		14 00	350
6¼-in. 3-row "	25	20	1 40	11 50		10 00	200

PRICE LIST OF SECTION-HOLDERS, SEPARATORS, AND SLATS.	Price of 100	500	Wt. of 100
Slotted section-holders, 1⅞x18⅛ outside	2 00	9 00	35 lbs
Slotted section-slats, ¼x1⅞x18⅛	1 00	4 50	15 lbs
Plain section-holders, 1½x17½ outside	1 60	7 50	20 lbs
Ideal plain slats, ⅜x1½x18⅛	1 00	4 50	18 lbs
L plain slats, ⅜x1⅜x12	75	3 25	10 lbs
Slotted sawed separators, 4½x18⅛	1 00	4 50	8 lbs
Plain sawed separators 3¾x17 to 20	70	3 00	6 lbs
Slat separators	1 60	7 00	10 lb.
I, P, S, T, and L fences	1 75	8 00	11 lb.
M fences	1 90	8 50	13 lb.

Name.	Put up 100	In flat 10	100	500	Wt. of 100
Hoffman frames, end-spaced	4 00	30	2 75	12 50	40 lbs.
Thick-top staple-spaced frs...	4 00	30	2 50	11 50	38 lbs.
All-wood frames	3 00	25	2 00	9 00	25 lbs.
Shallow ext.-frames (5⅜-in.)	3 00	25	2 00	9 00	22 lbs.

Price List of Feeders.	Price of 1	10	Weight of 10.
Simplicity feeder	8	65	3 lbs.
Division-board feeder, nailed	30	2 50	15 lbs.
Division-board feeder, in flat	20	1 80	15 lbs.
Boardman feeder, 2-qt., complete	25	2 20	20 lbs.
Boardman feeder, in the flat, without jar but with special cap	15	1 20	4 lbs.
Special caps only, for either Mason or lightning jars	5	40	1 lb.
Pepper-box feeder, 1 pint	8	70	4 lbs.
Pepper-box feeder, 1 quart	10	90	6 lbs.
Miller's feeder, nailed up	35	3 00	40 lbs.
Miller's feeder, in flat	30	2 50	40 lbs.

FOLDING CARTONS.—Page 25.

NAME OR DESIGNATION.	Price. 100	500	1000
1-lb. carton, plain, 1c each; 25 for 20c...	$ 75	$3 25	$6 00
1-lb. carton, printed one side, one color, name blank	80	3 50	6 50
1-lb. carton, printed one side, one color, name and address	1 30	4 00	7 00
1-lb. carton, printed two or three colors one side, or one color both sides	1 40	4 25	7 50

COMB FOUNDATION—Page 16.

GRADE.	Size, and sheets per pound.		In lots of 1 lb.	5	10	25	50
Medium Brood	7¾x16⅞	7 to 8	58	55	53	51	50
Light Brood	7¾x16⅞	9 to 10	60	57	55	53	52
Thin Super	3⅞x15½	28	65	62	60	58	57
Extra Thin	3⅞x15½	32	70	65	63	61	60

GINSENG.

Now is the time to start a ginseng-garden. September, October, and November are the best months to reset the roots or sow the seed. You should buy from responsible parties, so that you will not get the Japanese ginseng. It is a cheap and worthless ginseng that has been exported to this country to a great extent. True American ginseng is a great money plant.

These are the kind of letters I get:

JOPLIN, MO., April 20, 1903.

Mr. A. P. Young:—I have yours of a recent date, and note what you have to say in regard to the wild plants. You may enter my order for 4000 one-year-old plants; 2500 two-year, and 2000 three-year-old plants, at prices quoted, $15, $65, and $100 per 1000. These, you remember, are for fall delivery. I want nice roots, and it may be that I could use double the amount of this order. If I conclude to use more, can you furnish them?

JOPLIN, MO., May 5, 1903.

Mr. A. P. Young:—I have yours of a recent date, and noted contents. You may book my order for 2000 more three-year-old plants at prices quoted.

LEBANON, KY., June 17, 1903.

Mr. A. P. Young:—I am thinking very seriously of putting several hundred dollars into the cultivation of ginseng, provided I can get the seeds and roots at the right price. Please quote me your best prices.

SHARON, MICH., July 24, 1903.

Mr. A. P. Young:—Have you any ginseng roots for sale this fall? If so, I shall want from $100 to $200 worth of seedlings—two and three year-old plants. I am an invalid, and have been all my life. I have a few hundred dollars laid by that I should like to invest in something that would not require much labor to look after, and bring me more than 3 per cent for my money. A friend here who has a small garden that he started three years ago advised me to try ginseng culture. Give me your lowest cash prices on the above sizes.

HARRISBURG, PA., Aug. 15, 1903.

Mr. A. P. Young:—I am going to start a ginseng-garden this fall at Lansing, Michigan, and shall want about $200 or $300 worth of one and two year-old plants and stratified seed, all first-class stock. What can you furnish them to me for? Write me at Reading, Pa., as I am a traveling man, and am working this State now.

For prices address

A. P. YOUNG, Cave City, Ky.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Comb and extracted honey. See honey column. GLEASON & LANSING, Buffalo, N. Y.

WANTED.—To sell fine job-printing outfit, nearly new. J. W. STEBBINS, Broad Creek, Va.

WANTED.—To sell or exchange Dayton computing scale, cost $60; good as new. Will take $30 in white extracted honey, or any thing I can use.
J. M. ROOD, Delray, Mich.

WANTED.—A buyer for good feed yard; also wood and coal; one-half block from square; good water; nice town; good country surrounding. For full information address A. O. YOUNG, Appleton City, Mo.

WANTED.—To sell 10 colonies Italian bees in Danz. hives all with select tested queens. First year made 169 lbs. from two colonies; ready for delivery any time in October, at $1.50
CHAS. E. SELCHOW, Port Chester, N. Y.

WANTED.—A partner in the bee business, box factory, and a patent bee-hive.
D. S. HALL, So. Cabot, Vt.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Old postage stamps, especially foreign. Send list of what you have to offer and price asked with samples. A. L. BOYDEN, Medina, Ohio.

WANTED.—To exchange modern firearms for old gold watches and solid gold jewelry of any kind.
W. S. AMMON, Reading, Pa.

WANTED.—You to read the adv't of ginseng on this page. For prices address
A. P. YOUNG, Cave City, Ky.

WANTED.—An active, honest, experienced helper in the bee and honey business. Good habits and good references required. A permanent job for the right man. B. WALKER, Clyde, Ill.

WANTED.—Position by a young man and his wife as demonstrators, or to have charge of an exhibit, at the St. Louis Exposition Bonds if required.
E. C. C., Floresville, Texas.

WANTED.—To sell Foxhound puppies and dogs, Hovey strain, some Cocker Spaniel, finely bred. Write for prices. W. H. GIFFORD,
151 Franklin St., Auburn, N. Y.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange postage stamps with collectors, especially in West Indies, Europe, British colonies, Mexico, and United States. State what you have to offer and what you want in exchange.
A. L. BOYDEN, Medina, Ohio.

WANTED.—The address of every bee-keeper that makes his own hives The "Kold Klimate" bee-hive makes the best outside case in the world for wintering bees in any kind of hives.
D. S. HALL, So. Cabot, Vt.

WANTED.—To sell Italian queens. Untested, 60 cts. each; 3 for $1.60; 6 for $3.00. Safe arrival and reasonable satisfaction guaranteed. Reference, the Bank of Nevada. Send your name and address on a postal for my prices on queens for 1904.
CHAS. M. DARROW, Nevada, Mo. R. F. D. No. 3.

WANTED.—We want to send a catalog free, of the Koger Well-drilling machine to anybody who needs a well at his house, barn, or fields. Especially for domestic well-making. The farmer's friend, two or more buying and doing their own well-making when other work is not pressing. Cheapest by half, and the most practical of any. Best money-maker on the market.
J. J. KOGER & SONS, Mooresburg, Tenn.

WANTED.—To sell a splendid bee-ranch, 86 acres, 60 acres tillable; 2½ miles from Escondido. Spring of running water; well; wind-mill; 6-room 1½-story house; orchard, and hundreds of acres of sage and other good honey-plants; a very healthy location. Also 100 colonies Italian bees. Ranch $1200 00. Bees, $3.50 per colony. Address P. O. Box 172, Escondido,
San Diego Co., Cal.

WANTED.—Lots of eggs by lots of people. We'll get more eggs when we breed from better egg-laying strains. "Blood will tell." Almost any hens when crossed with White Leghorn cockerels of a superior laying strain will produce nice white pullets that will be early and good layers. We sell S. C. White Leghorn cockerels from stock direct from Henry Van Dresser's egg-laying strain, for from 75 cts. to $1.50 each, *now* The offer not repeated.
P. HOSTETLER, East Lynne, Mo.

PAGE & LYON,
New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .
BEE-KEEPERS' SUPPLIES. . . .

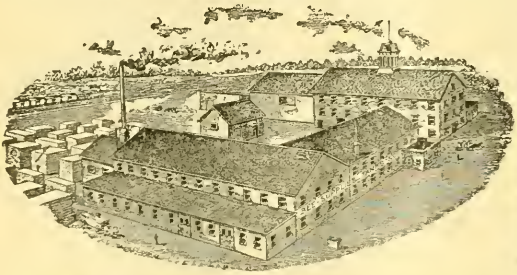
Send for Our Free New Illustrated
Catalog and Price List. . . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE-SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

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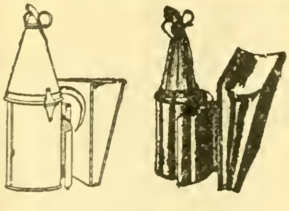
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
Henry Schmidt, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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GLEANINGS IN BEE CULTURE

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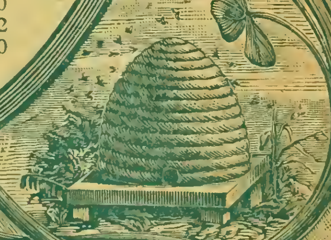

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MEDINA OHIO
U.S.A.

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BY RETURN MAIL.

We are now breeding from three distinct strains; viz., Imported or leather color, Root's long-tongued, or red-clover strain, and our old strain of white-banded yellow Italians, or albinos.

AUG. AND SEPT. PRICES:

Tested, each	$1 25
Select tested, each	1 50
Warranted purely mated, each	75
Same, per half dozen	4 25
Same, per dozen	8 00
Untested, each	65
Same, per half dozen	3 75
Same, per dozen	7 00

We have also a full line of bee-keepers' supplies including **The A. I. Root Company's Goods, Root's Sections and Weed's Foundation a Specialty.** Send for our 32-page illustrated catalog.

W. W. Cary & Son,

Lyonsville, Mass.

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is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

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Special Notice to Bee-keepers!

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and
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Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. MASON,

Mechanic Falls, : Maine.

Manager The A. I. Root Co.'s N. E. Agency.

A Neat Package Finds a Ready Buyer.

Pack your honey in the Non-drip Cases made by The A. I. Root Co.; sold in MICHIGAN by

M. H. Hunt & Son,

Bell Branch, Mich.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

KANSAS CITY.—Receipt of comb honey more liberal; demand improving. We quote fancy white comb, 24-section case, $3 25; No. 1 white amber, $3 00; No. 2, $2 75. Extracted, white, per lb.. 6½c; amber, 5½@6. Beeswax, 25@30. C. C. CLEMONS & Co.,
Aug. 25. Kansas City, Mo.

ALBANY.—We note an improved demand for honey, with light receipts so far. Fifteen cents seems to be a popular and standard price that trade is willing to pay. Do not require water-white, but a light transparent comb weighing not over a pound, a little short preferred. No honey except light arriving as yet. Buckwheat would sell at 13c. Extracted, white, 7@7½; amber, 6½@7: dark, 6. H. R. WRIGHT,
326,328, and 330 Broadway, Albany, N. Y.
Sept. 7.

MILWAUKEE.—The receipts of honey have been quite liberal, and the quality is excellent, quite improved over former years, especially the section honey. The market is good for the season, yet no urgent demand. Expect it will improve from this time forward, as small fruits get out of the way, and we now quote for No. 1 sections, fancy, 15@16; No. 1, 14@15. Extracted, in bbls. or cans, white, 7@7½; dark, 5½@6. Beeswax, 30. A. V. BISHOP & Co.,
Aug. 29. 119 Buffalo St., Milwaukee, Wis.

CHICAGO.—Honey is coming to market quite freely and is of first quality; this fact induces the trade to take it, and people are of the opinion that it is going to be reasonable in price, two factors which go far toward marketing the product. Best grades of white comb sell at about 11 cents per lb. Extracted, 6½@7½, according to quality and package; amber grades, 5½@6½. Beeswax, 30. R. A. BURNETT & Co.,
Sept. 8. 199 South Water St., Chicago, Ill.

SCHENECTADY.—We have received considerable white comb honey during the past week, and it is selling on arrival at 14@15c. Cartons should bring 16c. The wet weather has proven very detrimental to the buckwheat crop in this section. None on the market yet. Light extracted, 6½@7½.
CHAS. MCCULLOCH,
Sept. 7. Schenectady, N. Y.

PHILADELPHIA.—Comb honey is arriving quite freely, and prices remain firm with a good demand. We quote fancy at 16c; No. 1, 14@15; amber, 12@14. Extracted, fancy white, 7@8; amber, 6@7. Beeswax in good demand at 30c. We are producers of honey, and do not handle on commission.
WM. A. SELSER,
Sept. 7. 10 Vine St., Philadelphia, Pa.

BOSTON.—Cooler weather brings a better demand for honey, with but very light stocks on hand. Fancy white comb, 16c; A No. 1, 15@16. No. 1, 15. Extracted, light amber, 8c; amber, 7.
BLAKE, SCOTT & LEE,
Sept. 7. Boston, Mass.

ALBANY.—Not much doing in honey yet, but customers calling for it now. Have had some white comb in, and sold some at 16c, mostly 15. We quote light, 15@16; mixed. 14@15; dark, 13@11. Very little honey in this section, but we hear from more distant parts of State that it is more plentiful. Extracted in demand. Light, 7@7½; mixed. 6@6½; dark, 6.
MACDOUGAL & Co.,
Sept. 8. 375 Broadway, Albany, N. Y.

NEW YORK —New crop honey is beginning to arrive more freely, and the demand is good for all grades. We quote fancy white at from 14@15c; No. 1 at 13; amber at from 11@12; no buckwheat on the market as yet. Extracted is plentiful and in fair demand, at from 7c for white, 6@6½ for light amber, 5@5½ for dark. Southern, in barrels, at from 55 to 65c per gallon, according to quality. Beeswax is declining, and nominal at from 28@29.
HILDRETH & SEGELKEN,
Sept. 8, 265-267 Greenwich St.. New York.

FOR SALE.—Clover extracted honey, in 60-lb. cans. One can, 7½c; 2 or more, 7c. Bees for sale.
C. L. PARKER, Syracuse, Sta. A, N. Y.

FOR SALE.—Fancy basswood and white-clover honey; 60-lb. cans, 8c: 2 or more, 7¼c; bbls., 7 c.
E. R. PAHL & Co., Milwaukee, Wis.

FOR SALE.—Extracted honey, clover and basswood, in 60-lb. cans. M. ISBELL, Norwich, N. Y.

FOR SALE.—New extracted honey, from 7c up. Several sizes of packages. Sample 10c.
I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Fancy comb and extracted honey; extracted in 60-lb. cans. Prices quoted on application.
WILLIAM MORRIS, Las Animas, Col.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—5000 lbs. extra-fine clover extracted honey, all sealed before extracting; castor-oil body; good color; 60-lb. cans. Sample free. No cheap John need apply. If you need something special and are willing to pay for it, correspond with
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

WANTED.—500 lbs. of good comb honey. State price and kind. OKEY BORAM, Horner, West Va.

WANTED.—Comb and extracted honey; state price kind, and quantity. L. H. ROBEY,
Worthington, W. Va.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us. EVANS & TURNER,
Columbus, Ohio.

WANTED.—To hear from producers of comb honey in California and Nevada. It may sound unreasonable, but we have probably bought, for spot cash, more comb honey than any firm in the United States, during the past three seasons. We can, no doubt, do you some good. THOS. C. STANLEY & SON,
Manzanola, Colo., or Fairfield, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer, SEAVEY & FLARSHEIM.
1318—1324 Union Avenue, Kansas City, Mo.

We Make a Specialty of

Prompt Shipments.

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A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

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Stray Straws

By Dr. C. C. Miller.

One objection to going to a convention so far away as Los Angeles is that, when it is all over, you have a sort of homesick feeling to take leave of so many nice people you may never meet again.

The weather at the Los Angeles convention was not served on ice, but brought on steaming hot. [When I visited California two years ago, the weather was very delightful — cool at night, and bright and warm during midday.—Ed.]

For some time I've been learning that I'm not so large a man as I had supposed, but I never felt my littleness quite so much as I did after meeting the California bee-keepers with their big apiaries and big yields. They have big hearts too. [Yes, indeed they have.—Ed.]

Apiaries are not very plentifully sprinkled along railroads. In the whole 2300 miles to Los Angeles I think not a dozen are to be seen. [Yes, and the major part of the dozen are to be seen mainly along the last two or three hundred miles as one gets closer and closer to Los Angeles.—Ed.]

I don't know much about such things; but I'm wondering if E. F. Phillips means to put it just as strongly as he does when he says that in the second case it is *never* necessary for a male and female to meet. Is there no cycle in the case that calls for the male to appear after so long a time if the race is to continue?

Mr. Editor, I attach more importance to J. M. Mack's tool than you, for I can hardly agree that the accumulation of wax and propolis between top-bars does no particular harm. It means a good many bees killed if you don't go slow, and in time the accumulation becomes such that the spacing is greater. I can show you proof. [Perhaps you are right.—Ed.]

Never before, I think, in the history of the world, did so many bee-keepers take so long a ride together in the same car as the 25 who rode in a tourist car from Chicago to Los Angeles. For five days and six nights their home was in that car, and you may guess they had a good time. It was a bee-keepers' convention in continuous session.

The hot spell during the national convention made some of the Californians afraid of a repetition of the experiences of 1883. That year it held at 115°, and M. H. Mendleson said that, in spite of his covering the hives with brush, the combs melted down in them, the honey ran out in a stream, the bees deserted the hives, and hung in huge bunches all about. When a bee struck the ground the sand was so hot that it turned over and doubled up, a dead bee.

You are right, very right, Mr. Editor, to advise against unqueening at beginning of settled warm weather in spring for the sake of having young queens reared to prevent swarming, p. 767. But the immense loss from stopping brood-rearing is not the only objection. I tried it one year with several colonies. The majority of them failed to raise queens so early, and those that succeeded seemed as much bent on swarming as if the queens had been reared the previous fall.

I'm writing this Straw in Los Angeles, Cal., on a table whose central adornment is a bottle more than a foot high, said bottle being placed there by A. I Root, who makes frequent potations therefrom, with many expressions of delight therewith. No, A. I. Root hasn't gone back on his temperance principles; the bottle contains nothing stronger than distilled water. I don't know that he got it at a bargain counter, but he seems greatly pleased that he got the whole gallon for 10 cents—bottle returnable.

That's quite a scheme, p. 756, introducing two virgins at a time, and gains a lot of time. I tried it once, accidentally, in a full colony, and the bees swarmed out with the free virgin. Perhaps they never do that in the case of a nucleus. [I referred this Straw to our Mr. Phillips, and he says that he makes it a regular practice to introduce two virgins in strong colonies as well as in nuclei. Of course, there are times in the season when such a procedure, say during the height of the honey-flow, would force out a swarm.—Ed.]

White sage is perhaps generally thought by outsiders to be the principal one of the sages; but Californians say it cuts no great figure, the black and purple sages being away ahead, both in quality and quantity. [Yes, the average Easterner gets the impression that white sage is the main honey-plant of California, because all California honey from sage is named *white* sage. The black sage produces a great deal more, and the purple or button sage comes in as a close second. But white *sage* honey is not misnamed, because it *is* white, and it is *sage*, but not necessarily *white-sage*-plant honey.—Ed.]

"It is a question in my mind whether the accumulation of propolis or bits of wax along the edges of the top-bars does any particular harm," quoth ye editor, p. 7o7. I suspect that's because at Medina you sell off colonies so constantly that you have no combs of any great age, so there is no chance for accumulation of wax. When you get a good stock of burr-combs between top-bars, you must move slowly or you will kill bees; and later on you can not space up to place without cleaning off the wax. [Your point is well taken. It is true that, in sending out nuclei as we do, we are constantly renewing our combs, and perhaps none of them get so very dauby with propolis. But there is another point to be considered; and that is, the depositing of propolis in Marengo is much worse than in Medina. If I were in your place I would breed non propolizers.—Ed.]

For one day of my life, at least, I had a taste of the life of a California bee-keeper, when I spent the day at the home ranch—not the home, mind you. which was a good many miles away—of L. E. Mercer; and with such a host several of us had a most enjoyable day. Mr. Mercer, unlike others, does not rent, but owns the many acres occupied by his several apiaries, and the season's product from all of them was bunched in one pile in tin cans at the home apiary. It toted up 100,000 pounds from less than a thousand colonies, spring count, and it looked like a good bit of honey. Although every thing was on a big scale, the apiary with its surroundings was a model of neatness. [A few days among the bee-keepers of California is a wonderful revelation to an Eastern bee-keeper. But it should be borne in mind that these big yields come only once in three to five years. The intervening years are apt to be off, and the poor California honey-producer has to live on his earnings made during the good year, so after all he has no very great snap. Like the children of Israel of old in the desert, he has to make the fat years take care of the lean ones.—Ed.]

I wonder if L. B., p. 764, had a Miller staple-spaced frame before him when he said, "the stoppers are very nice to sharpen the knife on." They're nail-spaced rather than staple, but that doesn't figure. When you have a frame before you, there is little danger that you will deliberately take the pains to run your knife into the spacing-nails at the top, and there are none at the bottom. You see on each side the spacers are at only one end. [When I was in one of the large California apiaries helping to extract and uncap, I was thoroughly convinced that any form of metal spacer on extracting-frames would be an intolerable nuisance. I do not see how a *nail* will be in any way better than a *staple*. I should prefer a staple, because of its rounding top as against a sharp nail-head or dowel-pin. Say, doctor, I hope that, before another issue is out, you will be put through half a day's experience in M. H. Mendleson's extracting-yard; and if you do not agree that metal-spaced frames for extracting are not to be tolerated for even one minute, then I will furnish you all the nail spacers you can use the rest of your days, free of charge—or any other kind of metal spacers, for that matter.—Ed.]

A correspondent writes with evident alarm, referring to the passage in Gleanings saying "the effect of the accumulated poison may be serious in its effects in after years, as it was in the case of Langstroth and some others." I don't believe it is worth while to raise unnecessary fear. My private opinion is that Langstroth's spells of mental depression had nothing whatever to do with bee stings. If they had, the effect of the accumulation of the past 42 years' stings ought to begin to appear in my case, and I never had more buoyant spirits in my life. [My, oh my! you have got a wrong impression. I did not say, or at least I did not intend to convey the idea, that bee-sting poison was responsible for those distressing periods of mental gloom in the last ten or twenty years of Langstroth's life. If you will remember, one or two of his last articles told how, after he got over these spells, he experienced a queer tingling sensation about the eyes and nose whenever he passed a hive at the beginning of spring. At such times the bees would elevate their stings, leaving a tiny drop of the poison to show very distinctly. The odor of it, Mr. Langstroth thought, poisoned him. There were several other reports that appeared at the time, and one or two in late years from persons who experienced the same sensations. But granting all this, I agree with you that no one needs to have unnecessary fears from the effect of accumulated poison after being stung a good many times, or during the period of a whole lifetime. The cases of father Langstroth and the others are so few as to make them less than one in ten thousand—so rare, indeed, that they can scarcely be taken account of. Still, as I said in GLEANINGS, it is well for one to err on the safe side of having too few stings for fear he may be the one in ten thousand. And, besides, is there any thing to be gained, or any possible advantage, in having one's system inoculated with too much of the poison?—ED.]

A MODIFICATION of the shaken-swarm business that I tried this year seems to be an improvement. When it comes time for the first shaking, an excluder is placed over a weak colony or nucleus, say No. 5, and over this are put the shaken combs from four colonies, of course making the pile five stories high. If the lower story contains only a nucleus, enough bees are left on the shaken combs to secure the brood against chilling. If the lower story contains a fair colony, the bees are all *brushed* from the combs. Of course, empty combs were given to the shaken swarm. Ten days or so later four more colonies are shaken, and a pile is made over another nucleus or weak colony. This time, however, instead of empty combs the shaken colonies receive the combs of the four upper stories of No. 5, every bee being brushed clean from them. No. 5 is thus in fine condition to receive sections, because it has all the bees that have in ten days emerged from the combs in those four stories. The colonies last shaken will also be a good deal better off than if they had received empty combs, for they will have the bees that hatch from the combs during the next ten days. So far, however, as the queen is concerned, they are the same as empty combs; for as it takes her 21 days to make the entire round of laying, in that time filling the whole brood-nest, she has half of it already empty for her first ten days' laying, and at the end of that ten days the other half will be empty. In actual practice I could see no difference between giving these combs half full of sealed brood and giving empty combs, except, of course, the greater strength of the shaken colonies. [This seems to be a good plan, providing, of course, that colonies shaken on to empty combs will *stay* shaken—that is, not swarm out again. It certainly enables one to utilize the capital (brood) to the best advantage; but in our locality, in ten days the honey season would be over. We had a heavy flow of honey, but it stopped square off just as the bees were pretty well advanced in the supers. Cold rains came on, putting an effectual quietus on our plans. In this locality, and particularly this season, the plan above outlined would not work—that is, it would not enable us to use the brood in producing honey after it had hatched out.—ED.]

Pickings from Our Neighbor's Fields
By "Stenog."

Moth-balls at the entrances of hives are recommended as a preventive of moths till moth-proof bees can be introduced.

* * *

M. S. Beverlin, of Colorado, says, "I have come to the conclusion that a man can not be up-to-date who does not take one or more good bee-papers."

* * *

Chief Chemist Wiley, of the U. S. Department of Agriculture, is reported as saying that he intends next year to plant onions with potatoes. He thinks the tears the onions will draw from the eyes of the potatoes will irrigate them enough to make them drouth-proof. Of course, that is "scientific pleasantry," or what Dr. Miller would label a "joke."

BRITISH BEE JOURNAL.

In speaking of bee culture as an industry in France, the following clipping is made from the Westminster *Gazette:*

> Fruit culture and bee culture have both been recommended to the distressed British agriculturist; and perhaps the advice has sometimes been superogatory. It is permissible, however, the *Illustrated Scientific News* points out, to draw attention to the way in which the honey industry has advanced in France during the last few years. In ten years the output of honey has increased from 7,000,000 kilogrammes to 8,500,000 kilogrammes. The increase is due less to an increase in the number of hives than to the greater yield of each hive, which has now risen to about 500 grammes, or 11 lbs. a hive. What is more gratifying (to the French producer) is that, owing to the scientific methods of bee-farming, the yield each year has become more constant and less affected by vicissitudes.

That comes in well with what is said further about French apiculture.

* * *

The Sussex *Daily News* says:

> A novel sight at the Hayward's Heath (Sussex) market, a short time ago, was a swarm of bees which came over like a cloud in the afternoon and settled on the wall at the Station Hotel, close to the base of the bracket of one of the large outstanding lamps in front of the building. A Mr. Ford essayed to take the swarm in a box, but they escaped from this receptacle and swarmed again on the wall finding an orifice which led to beneath the floor of the sitting-room in the hotel. In the evening Messrs Sands, Small, and Jolly, took up a board or two of the floor, and secured about half a bushel of the bees. Yesterday there was again a large number of them on he hotel wall, but not in the swarming mass which appeared on Tuesday.

* * *

Concerning bees and their ways, the following is related in the *Globe:*

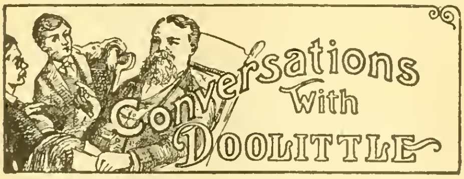
> A curious place for swarming has been chosen by a hive of bees at Arcot Hall, near Newcastle, the seat of Mr. Howard Pease. The bees had swarmed up an apple-tree, and the gardener, on going up a ladder to examine, was startled by observing a green linnet fly out of the middle of the swarm. Closer investigation revealed its nest with two eggs in, the queen-bee hav-

ing settled on the nest with her attendant hosts, the linnet meanwhile calmly sitting on her eggs. With great care the gardener cut off the bough of the apple-tree — swarm, nest, and all; and, after having smoked the bees off, he carefully stuck the bough up again. The linnet returned to her nest, and is now sitting on four eggs.

* * *

AMERICAN BEE JOURNAL.

In the issue for Sept. 3, somebody asks Dr. Miller how much honey and wax are produced yearly in this country. He admits he does not know. The government statistics do not seem to be satisfactory. Probably the greater portion of the bee-keepers make no returns, not thinking it worth while to report the small and precarious crop which is used entirely on their own table. In this journal, page 111, 1902, the editor estimates the weight of comb honey produced annually in the United States to be 50 million pounds; extracted, 125 million; value, 8 to 10 million dollars. Perhaps these figures ought to be doubled. In France the government statistics are far more painstaking than here, and I am glad to find in *L'Apiculteur* a most elaborate report on the number of colonies of bees kept in France, together with the amount of honey produced in 1901. Each of the 87 departments of France is given in detail; but a summing-up for the whole country, up to Dec. 31, 1901, is as follows: Total colonies of bees, 1,675,929; honey of all kinds, 19,876,661 lbs. Value of honey, $2,723,612. Wax, 5,577,682 lbs., worth $1,100,000. The average value of wax would be about 19 cts. The population of this country is fully double that of France; but even if the French figures are doubled they will still fall far behind the estimate given for this country. But the latter may be faulty. I have a similar table for Austria; but as the unit of weight is not given I can not use it.—Ed.]



LATE-REARED QUEENS.

"How do you do, Mr. Doolittle? As the nights are getting longer I thought I would come over a little while and chat a few minutes with you on bees."

"Yes, the evenings are quite a little longer than they were, and I am reminded that the bee season for 1903 will soon be over. How did your bees do this year, Mr. Brown?"

"I did not get much surplus, but find that the colonies, as a rule, have enough to winter on, for which I am thankful. It has been cold and wet nearly all summer, since the drouth ended in June. Then the hard winds, heavy rains, and severe hailstorms, have made the season unpropitious beyond any other season I have ever known."

"Yes, that is true. But what was the 'chat' to be about to-night?"

"I wanted to have a little talk about late-reared queens, as I wish to raise some during the last of this month. Bee-keeper Smith tells me that, if I so raise them, they will be of no use, as they will not find any drones thus late in the season, as the drones will all be killed off."

"If *all* drones are killed before any queen becomes old enough to be fertilized, and the season of the year is late fall, of course such a queen will become barren or a drone-layer."

"Why do you say barren? Smith said they would be only drone-layers, which would be even worse than no queen at all."

"I know some say drone-layers every time; but my own experience has been that nearly or quite half of the queens which I have wintered over that were not fertilized never lay at all."

"Without discussing that part of the matter further, was Smith right in saying that a queen not fertilized in the fall would be of no use whatever?"

"Well, that depends on the size of the colony she is in. If it is merely a nucleus, with no prospect of wintering over, then I should say such a queen would be worthless. But should the colony be a good one, or one strong in bees and rich in stores, then I should consider an unfertile queen of some value, as my experience goes to prove that a colony having a queen, be she laying or otherwise, will remain much more quiet during the winter months than will a queenless colony; hence the colony having a queen will come out stronger in the spring, with less consumption of stores, than will one with no queen."

"Will such an unfertile queen be of any use in the spring?"

"Only in one way. She can be allowed to remain with the colony until we are able to procure a young laying queen from the South, and thus a good colony may be saved which otherwise might be lost. But even in such a case I should consider it much more desirable to purchase a queen from the South, and introduce her to the colony having no fertile queen in the fall, where such is possible, than to try to winter over either a queenless colony or one having a virgin queen."

"Why?"

"My reason for so considering is this: Such purchased queen will commence to lay during February or March, and from her brood the colony will be materially strengthened before a queen could be procured in the spring, and thus the colony becomes ready to take advantage of the early honey-flows in the spring, which would be of little use to the colony which went through with a virgin queen, should she prove barren, and would be the means of having some of the combs filled with drone brood, did the queen prove a drone-layer."

"Yes, I see that point; but a thought comes to my mind. How does any one know that all the drones are killed off in his section of the country previous to October 15th or November 1st?"

"That is a question I have felt like asking several times. One or two years I have been quite sure there was not a drone within reach of my queen's flight, and yet the spring proved that every one of my late-reared queens had found drones from somewhere, as they were all prolific layers of worker-eggs. In fact, every time I have tried to winter over virgin queens, by way of experiment, all proved to be fertile in the spring, except in spring following a fall during which the weather gave the bees no chance for late flights; and only as I have clipped the wings of the queens for these experiments, thus making it impossible for the virgin to fly out in search of any drone, have I been at all certain of success. From this experience I have ceased to worry over late queens failing to become fertile."

"Then you think there would be little risk in my trying to rear queens the latter part of September almost any year?"

"I so think. But no bee-keeper should try to rear queens late in the season unless several hundred drones are preserved from the very best stock he has in his apiary."

"But how are such drones to be kept? The bees are very persevering in killing drones in my locality after all of the honey-flows are over."

"It is quite an easy matter to keep choice drones, even as late as December 1, by taking frames of drone brood from choice colonies just before drone-rearing ceases, and putting said brood in a colony from which you now remove the queen. Ten days after the queen is removed, cut off all queen-cells, and such a colony will keep its drones as long as any are desirable in the fall."

"How is the strength of such a colony to be kept up as regards worker-bees?"

"If a frame of sealed worker brood is given to these colonies occasionally, its strength will be kept up, also the flight of drones will be more profuse late in the season than would be the case if the workers became few in number. Then if an upper story, filled with combs of honey, be placed on the colony which is to retain the drones, the drones will fly still stronger. for, to fly strongly, drones need plenty of honey within easy access."

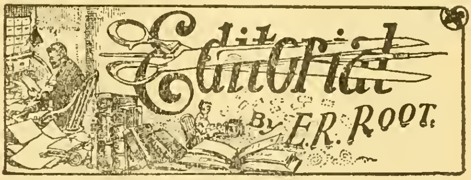
"Thanks for this last suggestion. Have you any more that would be of help to me?"

"If you do not think it too much trouble, drones can be made still more active by feeding the queenless colony containing them plenty of warmed syrup or honey at about noon the latter part of September, half-past eleven during October, and at eleven o clock during November, feeding only on such days as bees can fly. If, in addition to this, you go to this drone-keeping colony on some day during the latter part of September, when it is still, and yet so cool that you will not be troubled by robbers, and carefully go over every frame in the hive, killing every drone that is at all inferior as to size, activity, length of wings, shape, marking, or in any other way, you will have something along the line of drones for your late-reared queens to meet that will very materially enhance the value of every colony having a queen which may chance to mate with such a drone."

"About what would be the chances, do you think?"

"My experience says about 50 per cent in September; 75 in October, and 90 in November. During the latter part of October, and all of November, neither drones nor queens seem desirous of making long flights as in summer, and are not from the hive more than a few minutes on their flights, hence the mating takes place almost in your own apiary; and where you are sure that you have no drones save those hand-picked and preserved by yourself, you are almost absolutely certain of results. The course I have outlined is the one I have pursued for the past few years, and I think it has paid me fully as well as any work I ever did in the apiary. If we are to keep up with the times and the close competition of these days, we must strive for the *best* bees as well as the *best* honey, put up in the most marketable shape."

"Well, I must be going now, and I wish to thank you very much for this interview, Mr. Doolittle."



Editorial

By E.R. ROOT.

NOTICE TO MEMBERS OF THE NATIONAL BEE-KEEPERS' ASSOCIATION.

GENERAL MANAGER N. E. FRANCE, of the National Bee-keepers' Association, is preparing his annual report, and desires to include the replies from members in answer to certain questions that he sent out on a slip. He says if any have not received a set of these questions he will send another set if they will write him. Those who have received the questions, and who have for some reason or other neglected to send in their report, will confer a favor on Mr. France by filling out the blank and returning it to him as soon as possible. When the entire report is compiled it will make a very valuable document. But in order to make it complete he desires to hear from every member.

General Manager France has been hard at work on several cases; and when the time comes he will probably make them public. Cases of adulteration are receiving his special attention.

THE FORMALDEHYDE TREATMENT FOR FOUL BROOD REPORTED A FAILURE IN THREE CASES.

We have already had three reports where bee-keepers had tested the formaldehyde treatment, fumigating combs thoroughly in a closed box. The combs were put back into the hives, and the disease reappeared in each case. It is evident from *other* reports that the drug not only helps but cures. But the three failures already referred to should make every bee-keeper who is afflicted with the disease cautious — not to put too much confidence in it.

KEEPING HONEY LIQUID INDEFINITELY UNDER ALL CONDITIONS.

Some time last fall Mr. H. R. Boardman told me he had discovered a plan by which he could keep his bottled or tumbler honey liquid almost indefinitely, and under almost any conditions. Although I had great confidence in whatever Mr. Boardman says, I doubted very much whether he could succeed to the extent he claimed. He may fail yet; but certain it is that I took one of two samples of honey that he sent me and placed it on the window-sill outside of my office. This was some time last fall. Throughout the entire winter this honey remained liquid; and to-day it is as clear and limpid as when I received it. I have never yet found any bottled honey that would stand zero weather through the winter, although it is quite possible to seal the honey while hot in glass or tin so it will remain liquid for one or two years, providing it is kept at an even temperature of from 50 to 80 degrees.

THE UNKNOWABLE BEE-PARALYSIS; IS IT CURABLE? IF SO, HOW?

A short time ago I received some intimation—I do not remember when nor how—to the effect that our old friend O. O. Poppleton, of Florida, one whom I consider one of the most conservative and careful bee-keepers in the country, had a method for curing what we had formerly supposed was incurable—namely, bee-paralysis. I had intended to look into the matter, but had overlooked it for the time being. I now observe that my brother-editor, H. E. Hill, of the *American Bee-keeper*, is firing stray shots up my way that are evidently intended for me. Referring to the acknowledgment made by Geo. W. York, in the *American Bee Journal*, of the cure practiced by Mr. Poppleton, he says:

"There are some other editors and prolific apicultural writers who should arise and explain their ignorance of important information with which *Bee-keeper* students have long been familiar."

With the greatest of pleasure, my good friend. I desire to say, right at the outset, that when Mr. Poppleton says he has a method of cure for bee-paralysis, I am quite as well prepared to accept his statement as if I had seen the method applied, and its results. The plan in brief—a modification of it has been printed before in our columns, but I had not quite credited its efficacy—is sprinkling powdered sulphur over the affected bees and affected combs, but not till all the brood of the diseased colony has been removed, and put in a strong healthy one; for Mr. Poppleton says the sulphur kills all the unsealed brood and eggs. He finds that the source of the disease is probably not in the brood or combs, for he has put combs from paralytic colonies repeatedly into healthy ones, and never but once has the disease developed in another colony to which such combs have been given, and that was a year afterward. Mr. Poppleton rightly assumes that the infection—if it be such—came from some other source. He first used the powder-gun for applying the dust, but found he could sprinkle the bees better by picking up the powder between the thumb and fore finger. Every bee must be dusted. At first the disease will seem to get worse instead of better. The colony will dwindle down; but in two weeks there will be a decided improvement, and finally the colony will be cured and stay cured, while other colonies not treated with the sulphur will continue groveling in the throes of the disease until treatment is administered, when a cure will be effected within two weeks.

I hereby extend my apology to the *Bee-keeper* for not noticing so good an item; and when I neglect a good thing like this again I shall consider it a favor if our friend will send another shot or two up Medinaward.

I have before said that Mr. Hill is one of the best editorial writers in all our ranks. His journal contains many good things besides the two I have already given in this issue.

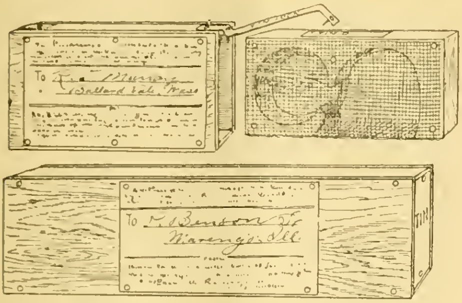
CAGES FOR MAILING QUEENS.

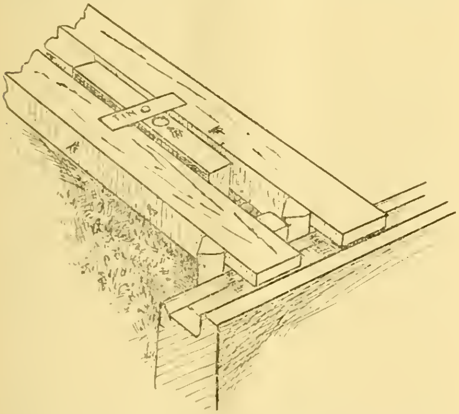
Mr. Frank Boomhower, of Gallupville, N. Y., a prominent queen-breeder and bee-keeper in the eastern part of his State, uses a very ingenious introducing and mailing cage. Some little time ago a sample of it was mailed us, from which we have had engravings made that show fairly well its general construction and use. But first we will let Mr. Boomhower speak for himself. He says:

> I send you withthis a case with three of my Novelty safety cages the way I make them now. You can see at a glance the superiority of these cages. They are the only shipping-cages that fully meet the requirements of the postal law regarding sending queens by mail. I have been told by a mail clerk at Washington that lots of live bees escape in the mails through unsafe cages that are unprotected. I myself last season, while in Bluemont, Va., received a shipment of queens from Georgia, and every one, bees and all, except one, was out in the mail-bag when it arrived at Washington. The cases were frail, with no protection only a thin pasteboard over the wire cloth. If the queens and live bees are again excluded from the mails we shall not be able to get them back again in a long time. I wish you would test the single cage I send you. Lay it on the floor and walk over it; let the heaviest man in your factory stand on it with his heavy boots or shoes on, and see how much it will

stand before breaking. You see they are made now out of waste scraps. I make these out of odds and ends from my waste pieces after sawing out hives, etc.

This cage requires 2 cents postage; but in the opinion of Mr. Boomhower and some others, the regular Benton, requiring only 1 ct. postage, is hardly large enough to send queens in through the mails, and hardly strong enough to stand the rough usage to which such packages are subjected. The Boomhower cage consists of an outer case, open at both ends, and covered over with little strips of tin in such a way as to hold the cage securely, and yet allow sufficient ventilation for the bees within. If more than one queen is to be sent, the case is longer—say long enough to take two or three cages. In the one shown in the illustration, two cages are accommodated. The plan of introducing is quite simple. A little piece of tin is nailed over the candy-hole, which, when turned at right angles, serves a double purpose. When it revolves the candy is exposed, and the cage is supported between the combs. See large illustration.





RAISING QUEENS A LA STANLEY; THE PLAN OF INTRODUCING TWO OR MORE VIRGINS AT A TIME.

ON page 446, May 15, we illustrated the Stanley method of securing cells on horizontal bars in brood-frames, and inclosing the same in cylindrical cages of perforated metal. In our last issue, page 756, we referred to having tested the Stanley cages. We now take pleasure in illustrating a modification, such as we have been using in our yard with a great deal of pleasure and success. On page 806 of this issue will be found a brood-frame with 14 virgin queens hatched from as many cells, each inclosed in a cylindrical perforated metal cage. Our Mr. Phillips said he had something nice he wanted to show me, and told me to bring my camera, and this is what I found. In the bottom of these little cages are inserted plugs of wood in which are smaller plugs of candy.

It does not matter just when these cells hatch out their virgins. The queens to be may come forth at different times; but they are all protected in a warm brood-nest, and are probably fed by the bees through the perforated metal.

Whenever virgins are needed, all we have to do is to go to one of these nursery-frames in a colony, take out one or more cylinders of queens, and insert them into nuclei, but always in pairs, as we explained on page 756. I asked Mr. Phillips why he did not use tinned wire cloth. "Because," said he, "the perforated metal holds its shape better."

We do not use the *queen-excluding* metal, because in some cases the cells are attacked, and in other cases the bees can get in and worry if they do not absolutely ball the virgin. Our method differs from the Stanley in that we use small perforations and cylindrical wooden plugs in place of gun-wads. Instead of being stuck to the cell-bar with melted wax, we use a nail-point that just projects through the plug of wood. It is thus easy to attach these plugs to the bars, and just as easy to remove them. Gun-wads are very good, but they are not thick enough to handle readily.

Referring again to the illustration, it may be interesting to note that every one of the 14 cells, inclosed in as many cages, hatched a virgin, bright, healthy, and vigorous.

Since writing the forgoing I have received a letter from Swarthmore, or, more exactly, E. L. Pratt, of Swarthmore, Pa., who calls my attention to the fact that he has been using this dual or multiple plan of virgin-queen introduction for three years, and has been furnishing hollow plugs in connection with the Swarthmore nursery cage. for the purpose of allowing colonies to release queens on the candy plan, for two years. He refers me to an article written by him in the *American Bee-keeper* for March, 1903, page 77, giving in full his plan for introducing two or more virgins in a hive at a time. This article I had overlooked. He even anticipated us in seeing the very great advantage of such a plan of introduction, for he says in the article referred to:

> By the above-outlined proceeding it will be seen that supplies of virgins, about the correct age to fly, will be constantly on hand, already introduced, waiting their turn at the boxes; and if the system is followed closely from five to six fertile queens will be ready for caging every ten days.

In connection with this plan he uses his small miniature nuclei, which have been condemned by some of our subscribers, and which have, in fact, proved to be a failure in the hands of Mr. Doolittle and ourselves. Swarthmore then pertinently remarks, in his letter referring to the matter:

> Now, Mr. Editor, since your Mr. Phillips is successful in at least two Swarthmore practices, is it not possible that he might be just as successful with the fertilizing boxes? I shall run these boxes after frost, and call to witness some of the men in whom you place more confidence than you seem to place in me. I can show that temperature has not much to do with the success of these one and two comb boxes when the principle of their handling is understood. Perhaps your Mr. Phillips may be able to improve them, and thus carry on a work that you yourself admit is important.

In another letter I am asked to make him a visit, and see these small nuclei working successfully day after day, turning out laying queens by the wholesale. But the extensive arrangements we are making to take care of our business another season will make it impossible to get away now; but I hope to see next season what Swarthmore is doing. He has certainly originated some very unique as well as short cuts in queen-rearing; and while at first they seemed to be of doubtful value, our Mr. G. W. Phillips has been and is now making several of them pan out well. It is reasonable to suppose that, if Swarthmore can make these small nuclei work, *we* can do it; and I therefore propose to give the matter a trial next season.

Mr. Phillips told me that I had made it none too strong in saying that two virgins, or a dozen, can be introduced at a time, if necessary, and that as soon as one virgin is removed another one may be released in three or four hours, practically wasting no time in introducing. By the old plan of giving one queen to a nucleus at a time he can not get more than one laying queen on an average in less than 12 days; but by his new one he is able to get two laying queens from a nucleus in a week on an average. This means that the queen-breeder can more than double the output from an average nucleus; and even he who rears queens for his own use can have fewer nuclei, and queens laying and ready for business in much less time. To the queen breeder and the honey-producer alike the dual-virgin plan is invaluable.

A MODEL BEE-CELLAR IN MICHIGAN.

Mr. James Hilbert, so well known to our readers as an enterprising and progressive bee-keeper, and a neighbor of A. I. Root up in Northern Michigan, has one of the best-constructed bee-cellars in the country; and on my last trip I secured two photos showing it inside and out. The cellar proper is half above ground and half below. The upper story is a general workshop and honey-storage room. The structure is situated on a side-hill, and is built in such a way as to make it not only frost-proof but so as to give it a uniform temperature. I wrote to the owner, asking for some data regarding its general construction, and he writes as follows:

> The cellar is 14 x 24 inside. It is built 3 feet under ground and 4 feet above. The foundation is a stone wall 3 feet deep with six-inch studding on the wall, boarded both sides, and filled in with sawdust. There are also inch cleats nailed on inside, and lathed and plastered, making a one-inch dear-air space.
>
> In building the stone wall we laid in 2 x 6 plank, letting them project 2 inches, and lathed and plastered on these, making a dead air space on the stone wall, to do away with the dampness.
>
> In one corner there is a tile drain, or intake, for fresh air, leading out 6 rods under ground, 3 feet deep. The cellar is built on higher ground, which makes it very convenient for underground ventilation. There is also a ventilator leading out through the roof. 12 inches square. This comes within 3 feet of the cellar bottom, and is arranged to shut off too much draft. The outside has been reinforced with a foot of sawdust coming above the cellar a foot, with tarred felt covering the whole. The floor above is made frost-proof by nailing on ceiling, filling in with sawdust between the ceiling and floor, and nailing inch strips to the ceiling, and then lathing and plastering. This cellar has never been cold enough to freeze, the temperature ranging from 41 to 45. I can put in 200 eight-frame hives if necessary. I have wintered 150 in this cellar very nicely. It stays very dry and nice all winter. The upper part is used as a workroom and for extracting. The cost was about $150.
>
> Bingham, Mich. James Hilbert.

It seems that our friend found that the stone walls projecting above ground were hardly sufficient to keep out cold in severe weather: he therefore protected it with extra sheeting packed with sawdust. This is shown in the half-tone, reaching half way up on the building, or just covering the lower room or cellar proper.

An interesting fact in connection with this cellar is worthy of recording here. Mr. Hilbert puts his bees in the cellar along when cold weather comes on; but instead of shutting the bees up in the dark, as is the practice with most bee-keepers, he leaves the door open until along in *very* cold weather. Then he closes the cellar, and leaves it closed until near spring, or when the bees are to be taken out. The advantage of such a procedure is this: The bees are given a large amount of ventilation during the fore part of winter, and at the same time they are protected. When the weather gets too cold the door is closed, when the temperature is maintained at 40 or 45° throughout the winter. One would naturally expect that the bees would fly out with the doors open; but Mr. Hilbert says that, as he manages, they do not.

This repository embodies some of the principles of the Bingham, such as a ventilating-shaft from the roof. The upper story, as explained by Mr. Hilbert, has a double-thickness floor packed with sawdust. In these two respects the Bingham and Hilbert are very much alike; but the latter is much more expensive, and, perhaps I might say, a more *useful* building. The cellar is more get-at-able; the bees can be more readily carried down through the covered doorway, going down only two steps. There are two doors — one on the extreme outside and one in the cellar proper.

For a perfect wintering-cellar I have not seen any better; and if one desires something really first-class I would advise him to build on the line shown by Mr. Hilbert.

GENERAL
CORRESPONDENCE.

VENEZUELA AS A BEE COUNTRY.

The Bees and the Flora; some Interesting Facts Regarding the Industry.

BY W. K. MORRISON.

Venezuela has of late years taken a very prominent place in international affairs, yet I have never seen any thing in print relative to its bee-keeping possibilities, probably because most people look toward it as a source likely to create a fight, and a fight or diplomatic duel is of far more interest to the general public than any thing that can be written regarding the peaceable exploitation of Venezuelan resources.

That Venezuela has a bee-keeping industry may be news to some; but it has one in embryo, with plenty of room for "expansion" without resorting to "jingo" methods

Probably it would be quite useless for me to say any thing about the chances for a modern bee-keeper without saying a word about the government and the people. Strictly speaking, Venezuela is governed on anarchial principles, hence every man practically defends his own life and property, and the same is true of Colombia, Ecuador, Peru, and Bolivia. If the reader grasps this fact it may aid him to understand clearly many things that appear in the public press about these countries. Rightly speaking, there is no government in Venezuela. The people are much like the Mexicans—a short, squat, copper-colored race, with about 3 per cent whites and perhaps 10 per cent Africans, who chiefly frequent the coast cities, and who are, as usual, hewers of wood and drawers of water.

Only one word suits Venezuela—"magnificent." I never saw any thing so awe-inspiring as the mountains that form its coast-line. Approaching in the early morning in a steamer, I saw a great black wall that reached from the clouds to the sea. It seemed as if day and the blackest night had met. About three hours later the sun got around the wall, and we began to see the wall was not quite perpendicular, and there were houses at the foot of it along the beach. Later we could see the whole mountain was clothed in verdure to its summit, 8000 feet above our heads. But 8000 feet makes a rather high wall, and it is this high wall which makes Venezuelans think their country free from invasion.

It is in the interior valleys, behind this wall, where bee-keeping will probably pay best. It is there also where *Apis mellifica* can be found in a wild state, and nowhere else so far as I could discover. It is there, too, where the bulk of the Venezuelan population is to be found, simply because it is the healthiest section of the country. Further south I do not think *Apis mellifica* can exist unprotected by man. Its enemies are too strong for it; but it is just there where the stingless bees do best, and where there are the greater numbers of species. If the inquirer were ignorant of this matter he would be led to believe by what the natives say, that stinging bees exist all over the country. There is a species common on the low country, which bites with relentless fury; and hearing what the natives have to say, the stranger would naturally understand that the ordinary honey-bee was meant. It is a very different insect, however. It builds its cone-shaped nest over or in a hole in the prairie, and at the distance of a few feet looks to be identical with *Apis mellifica*. It carries pollen in the same manner as its relative, but is a little shorter, and its wings are longer. The number of bees flying out and in a nest is about the same as of the hive-bee. All together it is a very interesting bee to a bee-keeper.

Around Caracas there are now a few bee-keepers using modern implements, though when I first visited the locality there were none; in fact, I constructed the first few hives with my own hands, having very few tools to work with. There are bee-hunters all about the country who peddle in a small way the native bee-nectar of the country.

Caracas is a mighty interesting place; at least it was so to me. The civilization is very peculiar, so are the houses and all else that go to make up a large city. The situation is grand and unique, at the head of a fine valley which slopes away toward the Orinoco. The sea is actually only 3½ miles away through the mountain wall, yet the sewerage of the city is carried hundreds of miles before it reaches the ocean. The climate is fine, and somewhat like that of Bermuda. It is even chilly in the evenings, being 3000 feet above sea-level.

There are plenty of honey plants about. Around the mountains may be seen lots of the *Ipomea* family, including the aguinaldo. Mahogany, a kind of rosewood, and coffee produce large quantities of honey. Coffee would be a grand honey-plant if it were not for its short season, only 48 hours; but around Caracas it is grown at all elevations, so that its period is lengthened out. The coffee of Caracas is world famous for its quality. It is known in the United States as Mocha coffee. The cacao, or chocolate, of Caracas, is equally good, in my opinion unrivaled. There are three places where one can get a good cup of coffee—Caracas, New York, and New Orleans; but only one for chocolate. Real vanila is used for flavoring it.

Venezuela is not a place for fruit. Indeed, very few of the South American countries are. But fruits can be seen on sale there that I imagine are not known elsewhere, mostly belonging to the passion-flower, anona, and persimmon families. The local market for honey ought to be good, as the price of all food is high; but the producer could scarcely expect to ship, as the railway charges would be high. The railway crosses from La Guayra those same mountains already mentioned, at an elevation of 5000 feet; hence, though only 3 miles away by tunnel, the railway requires 22 for its zigzag course. It is a great engineering feat, but very expensive to maintain, hence the high charges. A locomotive hauls only two cars, and small ones at that.

Caracas, to a person who understands the language, and who is interested in men and things, would be a fine place to live in, despite its semi-barbaric civilization, and it is wonderful to me how modern improvements can be grafted on to such a people. I mean such things as telephones, street-cars, electric lights, and the like; and to sit at night in Bolivar Plaza, with a band playing, waiters flitting about with refreshments for the listeners, the whole lit up with an excellent supply of gas, one can hardly realize that he is not in a highly civilized country.

Probably a bee-keeper combining poultry-raising and dairying with his apiculture would succeed very well. Still it would be a risky enterprise in so wild a nation. At Porto Cabello there are much better chances, for if the Venezuelan can't or won't eat the honey it can be exported. It is a fine port, as its name indicates—"the port of the hair," for even a hair is not required to moor a vessel alongside the wharves. There is a gap in the mountains here, and this gives the cattlemen of the Orinoco the opportunity to get their wild-looking cattle right up to the steamer's side. For the same reason it might suit a bee-keeper, as he could ship to any port in Europe. He could safely reckon on a crop every year; and if he were to combine his business with cacao-growing, possibly he could do fairly well.

The conditions are pretty much the same as in Cuba; in fact, there is no appreciable difference. There is nowhere else in Venezuela worthy of mention.

* * *

SHALLOW HIVES WITH CLOSED-END BROOD-FRAMES.

The Bingham Hive.

BY J. O. SHEARMAN.

The spirit moves me—or, rather, W. K. Morrison does—to say something on the subject of shallow hives again, as I have been using such for over thirty years, and have seen no reason to discard my original size of frame (the Bingham, 20 inches long by 6½ deep, and 1⅜ from center to center). If I had to start all over again, however, I should prefer frames 1¼-inch spaced, and with closed ends entirely, for the following reasons: 1. Less propolis used in the hive; 2. Less waste room; 3. Less trouble with brace-combs; 4. Less room for millers to hide in.

A year or two ago, Mr. Editor, you wrote me for an article describing closed-end frames. I made it as short as I could, because editors object to long articles; but if I had written up their advantages as well, I would have given some of the pointers in Mr. Morrison's article. In fact, he agrees with my experience very nearly, only I use a brood-chamber 20 inches long, and anywhere from 2 to 12 frames wide, as it is adjustable without dummies, which are a nuisance. The two or three frame is for a nucleus, though I make up most of my nuclei with little frames, three of which occupy the space of one ordinary brood-frame. Seven of these little frames fill a nucleus-box; or by taking out the middle one, and inserting a division-board, two three-frame nuclei may be kept in one box.

Closed-end frames are the only ones that will each occupy *exactly* the same space, unless we except the Hoffman, which is virtually the same principle not carried out to a common-sense point—that is, the Hoffman frame makes waste room.

Last year I tried an eight-frame L. hive by trimming the combs and tacking on thin strips of wood all the way down the end pieces, so as to space them 1¼ inches apart, then put 9 frames in a hive instead of 8, and they did as well, and had one more comb to brood in, but less room to make up extra drone and queen cells, as any bees will do in any hive.

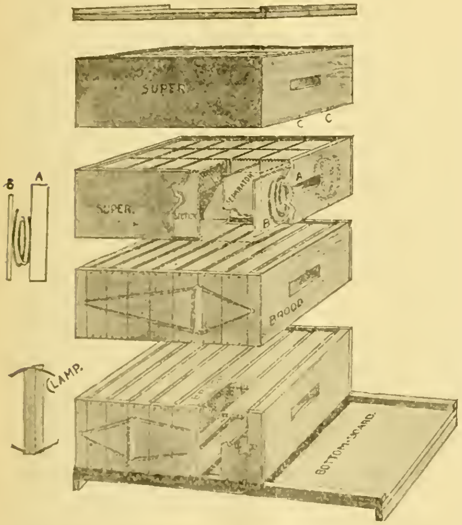
Any hive with a hanging frame is a bother for me, except in an upper tier for extracting; then I move them apart so as to use one less comb in the same super. These drone combs do no harm above queen-excluders. That is the only place I want drone comb if I can help myself, and none in the sections until after the swarming impulse has passed, else the queen is apt to go up into the sections, as all queens seek to lay drone eggs before swarming.

My brood-chamber is adjustable by simply moving the back board *back* in order to put in more combs. The most of my comb-honey colonies have eleven or twelve combs from June to August, but may have ten in September, or possibly only eight or nine for winter. For extracting I space the brood-chamber to the width of any super I wish to put on; or if for piling Bingham frames, then put eleven below, and have a case that will hold eleven or twelve with a movable back inside, in order to wedge up and tier up—the more the better if bees are in condition and a good flow is on. The ten-frame Bingham hive has nearly the same capacity for brood as the eight-frame L. hive. The ten-frame L. hive is too bulky for me to handle. I once, over twenty-five years ago, tried an experiment for comb honey, or trial between ten L. hives (the ten-frame) and ten Bingham hives. I put a prime swarm in each alternately, giving a full set of combs, and boxes on top. I kept account of it, and the Bingham averaged over $1.00 worth more of honey. I tried a few of the L. hives the next year, but they did not pay as well, so I put them to extracting. That ended big hives for comb honey with me.

New Richmond, Mich.

[That our readers may know a little more exactly what the Bingham hive is like, we reproduce a cut we made for it about one year ago, and which appears in our A B C of Bee Culture, under the head of "Hives." Mr. Bingham is a pioneer in the use of shallow hives and closed-end brood-frames. Indeed, I believe he holds the earliest patents ever issued on such a combination — patents that have long since expired by limitation. There are many features about the Bingham hive that will commend it to the practical bee-keeper, especially the one who finds the Langstroth frame a little too deep.

I have had a feeling for years (perhaps I am mistaken) that the closed-end frame would be the only frame used by bee-keepers in the future. Propolizing and bee-killing, formerly supposed to be insurmountable barriers in the experience of those who have used these frames for years — yes, and I might say for a lifetime — are not a tenth as bad as the advocates of the open end frame have held. There are probably ten times as many closed-end frames in use now as there were ten years ago; and this statement is based on our experience as supply-manufacturers during the time stated. But perhaps not all people may like shallow hives.—ED.]



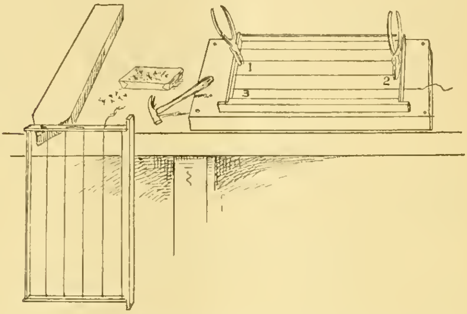
TIGHTENING THE WIRES.

Shall we Draw the Wires Taut? and if so, How?

BY G. C. GREINER.

To supply the "missing link," as the editor rightly calls it, I herewith give a description of what I consider the proper way of tightening the wires, with drawing to explain more fully the operation.

As an introduction, I will say right here that I have never, until this summer, had any practical experience with wired frames, and that I have used full sheets for brood-combs to a very limited extent only. Last summer I used about 15 lbs. of full sheets on wired frames, with the main object to investigate and gather such information as thorough work and close observation could furnish. After reading on this subject all that I could find, and before I had undertaken to do the work itself, I had given the matter a thorough theoretical going-over, and had come to the conclusion that, the tighter the wires, the better it would hold the foundation. I could see no reason why a looser wire should keep foundation from bulging or buckling any better than a tighter one; consequently I tightened all my wires all they could stand. I made them sing like "fiddle-strings," perhaps not as high as the A or E pitch, but something like the D or G strings, until the end bars were slightly sprung in. All my frames have four wires, not because I considered them really necessary, for I think three or possibly two, as Mr. Coggshall uses, will do; but I meant to do a thorough job, and follow GLEANINGS' advice, which I think is "to put a wire every two inches."



A few days ago I got the proof of the pudding. I examined every comb of every young swarm that I hived on full sheets (I used about all of the 15 lbs. for that purpose), and found practically every one as even and true as a board dressed on both sides.

When I string the wire in the frame I take no pains to draw it tight—simply thread it as you would a sewing-machine. After the frame is taken from the wiring-board it is naturally still looser, so that, when all the slack is taken out, a couple of inches may have to be cut off.

To tighten the wire, we need a little tightening-outfit. First a nailing-block to drive the 2-oz. tacks in the frame. This is a dressed piece of 2×4 scantling, hard wood preferred, about as long as the bench is wide, laid across the bench, with a pointed end an inch or two projecting—see drawing; then a tightening-board. A piece of board like the wiring-board, or a little larger than the frame, fastened to the bench, will answer. Four pins or headless nails are driven into this to fit the four inside corners of the frame, all slanting a trifle toward the center. A small hammer, a pair of common wire-pincers, a pair of shears, unless the pincers have a wire-cutter, and some 2-oz. tacks, complete the set.

Now the operation. Hold the frame on the block as shown in the drawing; drive a tack about ½ inch from the hole of the wire end, within $\frac{1}{16}$ of the head. Give the end of wire one wrap around the tack as tight as you can draw it with your finger, and drive the tack home (head clear in). Move the frame from you and let the other end of end-bar rest on the block and drive another tack the same as the first, ½ inch from the hole of the other end of the wire. Lay the frame on the tightening-board, tacks to the right, and step to the left. With your left hand take the slack out of the first wire by drawing the second wire to the right. Grab the second wire, with pincers in right hand, close to the end bar (Fig. 1); using the upper edge as a focus, draw the wire as tight as it will bear. Lay your left thumb, fingers inside, on the wire to keep it from slipping back, and release the pincers. Reach over, and with the pincers take the slack out of the second wire by pulling on the third; slip the pincers close to the end-bar (Fig. 2), and use the upper edge again as a focus, drawing the wire as tight as before. Release the left hand; reach over, and, with fore finger and thumb inside, keep the wire from slipping back. Reach back with the right hand, and repeat the same operation at Fig. 3; and while the left hand holds the wire at this point, let the pincers take the wire at Fig. 4, about one inch from the end-bar. After the slack is taken out and wire drawn tight, make a tight wrap around the tack; this holds it until the latter is driven in. To give the pincers a chance to make this last wrap, the frame must be lifted an inch or so from the board.

Just how tight the wire can be drawn, and how to manipulate the pincers when winding the wire around the tack, can not be explained on paper nor even in verbal conversation. It requires some practical experience. We have to break a few wires before we get the idea.

On paper this operation seems like a lengthy job; but it does not take nearly as long as it does to write it or read it. With a little practice, and if done in a systematic way, a person can go over a stack of frames in a hurry.

La Salle, N. Y.

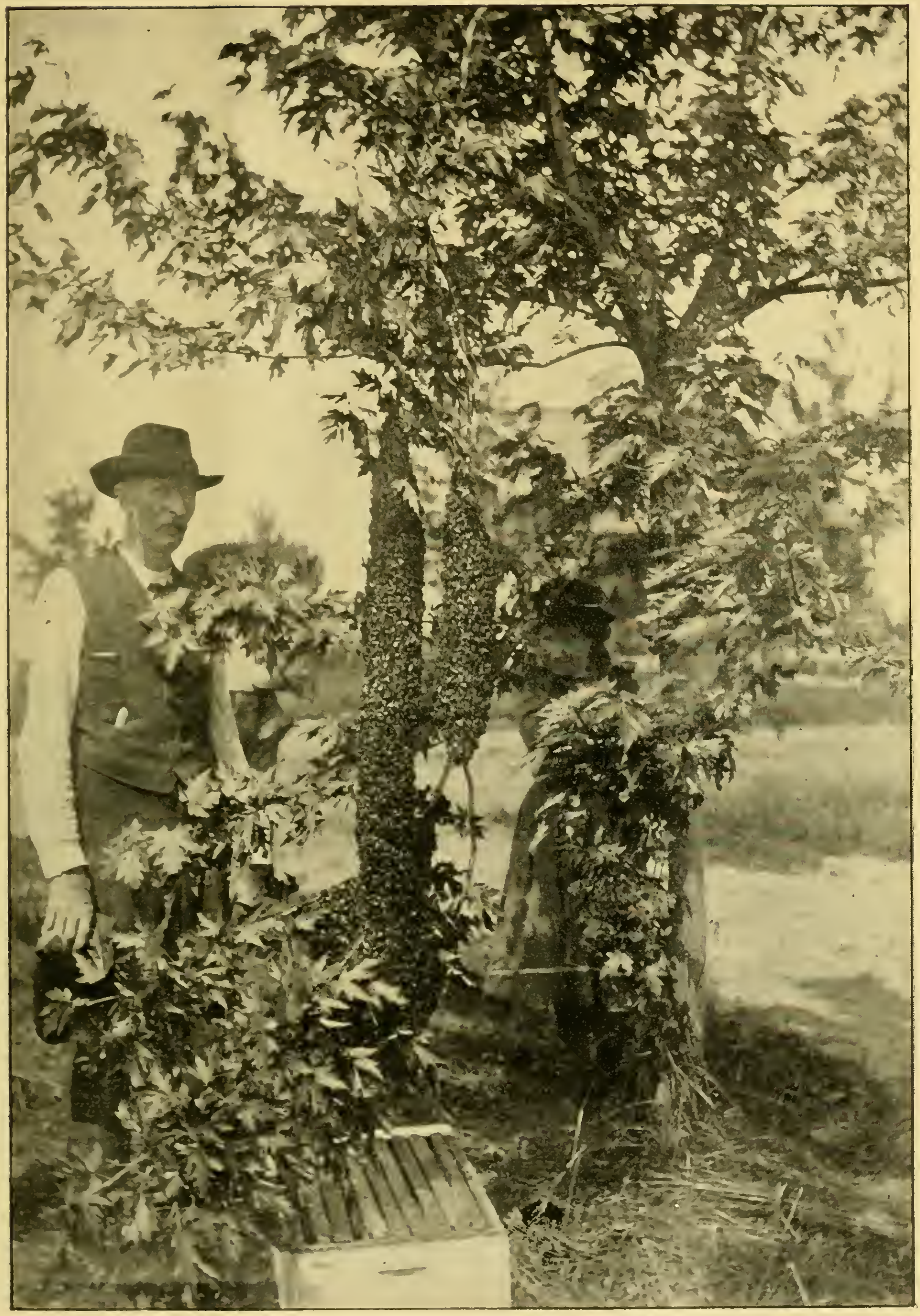
[Whether or not you should draw your wires taut will depend on the weight or heft of foundation used. Wax 8 or 9 sheets to the pound will buckle in the drawing-out if the wires be drawn taut. Sheets 6 or 7 feet to the pound will draw out into good combs as flat as a board, whether the wires be drawn taut or not. But a tight wire will not begin to stand the strain of one drawn moderately loose. The reason of this is obvious. If it is stretched to half its breaking strain, a little more strain will break it, like a slam or bang in an extractor. If there is no strain on the wire, and it is drawn tight enough to take out all the slack, and a little more, it is easy to see that it will stand a good deal more strain than if it be drawn up more nearly to the breaking-point.

But there is another factor to be considered. The tighter the wires are drawn, the heavier the foundation required. I believe it is possible for one to use a very light grade of wax by using wires drawn to the proper tension—not too taut. Foundation 8 or 9 feet to the pound is certainly cheaper than 6 to 7 feet; and if looser-drawn wires will stand a greater strain, and if you get as good comb with lighter foundation, you are saving in your pocketbook and getting good and stronger comb.

Some six or seven years ago I conducted a series of experiments in this matter of wiring and the degree of tension that could be placed on the same. At first I drew my wires tight, and put in heavy foundation, or what we then called "medium brood." All went well. Later on I used the same tension of wiring, and used light brood. Then the trouble began. The foundation buckled or bulged in between the wires slightly—not seriously, but enough to show that I was getting somewhat of a corrugated-roof effect. Some one, I am not sure who, said if I reduced the tension of the wires so that they could sag a little bit with the foundation, the combs would come out true and nice, and they did. That person, if I remember rightly, was Geo. E. Hilton, of Fremont, Mich. If so, he can corroborate by his own experience the matter covering some years before that time. We had been using perpendicular wiring, and Mr. Hilton took occasion to compliment me for recommending horizontal wiring in opposition to the views of my respected father.

All foundation, in proportion to its weight, has a tendency to stretch a little in drawing. The stretch is downward a very slight amount. If the middle supports or the wires will allow no sag, there is pretty sure to be a wavy appearance to drawn comb.

It would be very interesting to know how heavy your foundation was where the wires were drawn up like fiddle-strings. I will bet a cooky that it was medium brood; and if so, I can readily understand how you got nicely built-out combs. Try the experiment again with light brood, on a warm day, or in a strong colony, and see what you will get.—Ed.]



AN EIGHT-FOOT SWARM FROM A 16-FRAME HIVE. SEE NEXT PAGE.

Heads of Grain
from different fields

THAT BIG SWARM OF BEES.

I send you my photo of bees taken June 8. The main cluster measured a little over 6 feet, and a small cluster besides. It came out of a two-story sixteen-frame hive. There might have been two swarms that went together. I was not present till they had clustered. My folks said they thought they came from only one hive.

The photographer was afraid of getting stung. He took two proofs. I will send you one of each. I look more like a negro than a white man. I am quite light-complexioned, and have light hair.

Bees have been doing well up to present writing. The white clover has been the best for years. Sweet clover is in full bloom now, and bees are busy yet. We have no fall pasture here — no buckwheat nor goldenrod. The frost or something else killed the bloom on basswood in my neighborhood last spring. L. J. Bergh.

Mount Horeb, Wis., Aug. 4.

[The variety and shapes of the clusters of bees that one will run across is surprising. Sometimes a swarm will hang like an inverted cone; at other times it is like a long cylinder, in which case it will resemble the swarm shown in the illustration shown on the previous page. The probabilities are that the two clusters that are shown form one swarm, for it is not uncommon for bees to divide up into two clusters, both near at hand.—Ed.]

FORMALDEHYDE OF AMERICAN MANUFACTURE.

The accompanying note is of general interest. I can only repeat that the statements I made were copied from circulars of Schering & Glatz, and given on their authority. It is gratifying to know that we can have something as good (and perhaps at less cost) of American manufacture. Why not have something fitted to the case of the every-day bee-keeper quoted among bee-supplies? C. C. Miller.

[The letter referred to is as follows:]

Dear Doctor:—In your reference to my note in Gleanings, July 15, you say formalin is a 40-per-cent preparation (of *what?*). My statement, to which you refer, that it is an aqueous solution of formic aldehyde, is correct, and I don't see that you amend it at all. You say it is made by the Schering Chemical Works; but, in fact, it is made by the Chemische Fabrik auf Actien, formerly E. Schering, Berlin, Germany. You say the word "formalin" is patented. Is it? I know the *method of vaporizing formalin pastils, etc.*, is patented. This necessitates the purchase of their rather expensive apparatus. For this reason, and knowing from several years' use of the pastiles that they will deteriorate, I would not advise their use to bee-keepers.

The device of Mr. J. M. Thomson, p. 391, has all the requisites of a formaldehyde-generator, and can be made very cheaply. You seem to attach much importance to the word "formalin," while I regard the substance, formaldehyde solution, of greatest moment; and this, made by American manufacturing chemists, can be relied upon, fully as well as that of foreign makers. H. O. Vassmer.

Excelsior Springs, Mo., July 23.

A BAD MESS; WHY BEES DO NOT WORK IN SECTIONS.

I recently purchased four two-story eight-frame hives of bees. The party from whom I purchased assured me that sections had been placed properly in the top story. A few days after I got them home I discovered that he had prevaricated, as there was nary a section in any of the supers. I found that comb had been built from the cover, and extended down, and was fastened to the top of the brood-chambers, in the lower story. I undertook to remove the honey and clean out the super. In doing so I found a great quantity of brood in with the honey in the super. When would be the best time to take this honey out, and in what way would it be best to proceed? If brood is found in all of them, what can be done with it? Why will bees not work in the sections of a super newly put on, when the bottom part is full? What can I do to induce them? C. P. Savage.

Dunmore, Pa., Aug. 17.

[The only thing you can do is to smoke the bees down so that you can get at the combs with a long thin-bladed knife. Cut out all the brood-combs, and use the rest for chunk honey to be used on the table or to be sold among your neighbors. The brood may be fitted into brood-frames and allowed to hatch out.

As to why bees seem disinclined to work in sections is a question not easy to answer for all conditions. It is evident that they do not like individual compartments where individual combs separated from the rest of the brood-nest are to be built. They much prefer to work on large surfaces going through the brood-nest without obstruction. This is more especially true of pure Italians. But no matter what their preference, man prefers his comb built in little boxes so he can conveniently handle them for purposes of retailing. The time may come when consumers will be willing to accept chunk honey; but the laws will have to be much more rigid than now or else adulterators will take combs and mix them with pure glucose, and palm them off for pure honey. Bees may be induced to go into sections by putting in bait combs; but a better way is to have the colonies so overpoweringly strong that they will be compelled to go above, simply to get room; but in that case the entrance will have to be large, otherwise the bees will cluster out and loaf.—Ed.]

IS IT PICKLED OR FOUL BROOD?

I have in my apiary a number of colonies which are affected with what seems to be pickled brood. We have shaken out quite a number of colonies, using formaldehyde on the empty combs. What is singular about the matter is the fact that the diseased brood is, of its own accord, disappearing from many of the worst-affected colonies without any treatment whatever. In many colonies there are only a very few cells of diseased brood, while the combs are filled with healthy brood. Do you think that, under these circumstances, it would be safe to let such colonies go over until spring for treatment? Would it be safe and effective to treat the diseased combs with formaldehyde in October, after the healthy brood has all hatched? Will formaldehyde disinfect combs of sealed honey so that they can be used for winter stores?

W. H. Littlejohn.

Battle Creek, Mich., Aug. 11.

[The probabilities are that you have a form of pickled brood. While foul brood will disappear under some conditions, during a strong honey-flow for example, as a general rule it will continue to grow worse. Pickled brood will come and go; in fact, that is one of its peculiarities. My advice would be to treat all the combs in the fall with formaldehyde as you suggest. If you have any doubts at all it would be advisable to subject *all* the empty combs that you may have to this treatment. It will do no harm, and might save the spread of a dangerous disease.—Ed.]

DAMPNESS IN THE CELLAR.

I should like to winter my bees in a cellar. The cellar is 16×18×7, and has 3 windows 28×12 inches. There is never any water standing in it, but is a little damp at the bottom (which is of brick). We use a heating-stove in winter above the cellar. Please give me advice if it be a good idea to put a pipe into the cellar connected to the flue so as to draw the dampness out.

Brookville, Ind. H. W. Suhre.

[Dampness in the cellar does no particular harm, although perhaps it may be advisable to remove it by the plan you suggest. A flue that connects with the regular chimney of the heating-stove is a very useful appliance in a bee-cellar for removing the foul air. Our experience shows conclusively that in our locality, at least, it pays to keep the air in the cellar as fresh as possible at all times during the winter. —Ed.]

JAMES HILBERT'S BEE-CELLAR AND WORK-SHOP. SEE EDITORIALS.

SLICED ONION FOR BEE-STINGS, AGAIN.

I can fully indorse the remarks of Mr. E. Webber, of Tolland, Mass., in your issue of July 1, as to the effect of sliced onion for cure of bee-stings, or prevention of swelling and all after-inconvenience from stings. I first used this remedy some 25 years ago, when living and keeping bees in England, and I have never known it to fail, if applied immediately after being stung. I very seldom find any inconvenience or swelling; but if some little time should elapse and swelling have commenced, the onion soon allays the pain and arrests the swelling. Of course, the sting must first be removed. If I have to handle bees I pull up an onion (I keep my bees in the garden), and place it ready to hand. In my case it is *the cure*. Arnica, hot water, ammonia, etc., I have tried, but they are not in it with the onion. Try it, my friends.

C. E. Norton.
Moncton, N. B., Can.

INTERIOR OF JAMES HILBERT'S BEE-CELLAR. SEE EDITORIAL.

[As I said before, I am still doubtful about the efficacy of sliced onion; and with all due deference to you and Mr. Webber, I do not believe it has any effect. In most cases the pain will subside without the application of any thing. If the juice of the onion were strongly alkaline—sufficiently so to neutralize the acid of the poison—there might be some reason for it. I used to have in my younger days, when earache used to distress me so, person after person tell me that a hot boiled onion, placed on the outside of my ear, would instantly allay the pain. I tried it repeatedly, but it never had any more effect than any thing else that could hold heat equally well. Still, it may be efficacious with the sting of the bee; and considering the fact that two of our correspondents have suggested it, I shall make an effort to try it at the very first opportunity.—Ed.]

DO ALL BASSWOODS BLOSSOM?

Can you tell me whether all basswoods blossom, and how old they must be before they will blossom? If there are some that never blossom, how can I tell them from those that do?

I have a queen that is three years old, and she lays better than a young queen. Would you destroy her on account of her age?

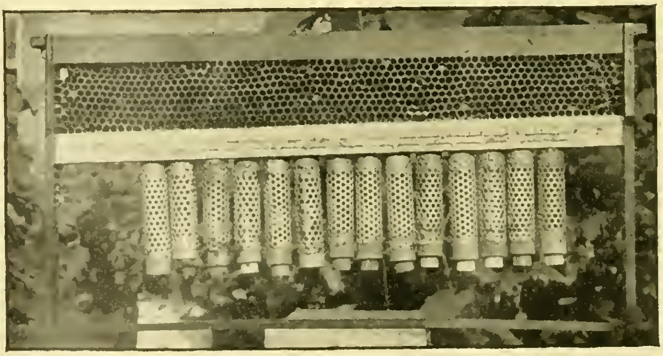
When bees supersede the queen, do they swarm or do they kill her?

W. Reetz.
Black Creek, Wis.

[Basswood-trees will blossom, often, when only three or four years old. Some years even old trees will not blossom at all, and some trees blossom only occasionally, while others blossom nearly every year. There is no way by which you can distinguish a good-blossoming young tree from one that does not blossom profusely.

Regarding the queen, a good deal will depend upon what kind of service she is doing. If she is laying well we certainly would not destroy her; but as a rule, three-year-old queens are inferior to those a year old.

As for superseding, we do not know ex-



FOURTEEN VIRGINS FROM FOURTEEN CELLS IN STANLEY CAGES. SEE EDITORIAL.

actly what does take place. In some cases the old queen simply gives out, and the next thing we know she is missing. Whether she dies or the bees make way with her, it would be hard to say in every case.—ED.]

A DEAD MOUSE IN A HIVE.

In 1900 I got a $1.00 select untested queen of the Root Co. She began laying by filling a frame, Hoffman, of drone, then some worker, but never had more than three frames of brood at once. She laid so little that other brood had to be used to keep up strength. Thinking that the long trip by mail might have injured her laying powers, without injury to her stock, some of her brood was put into strongly built-up queenless colonies, and young queens raised which have since given good satisfaction.

While I can not report such a wonderful success as Bro. Doolittle, page 621, I still think the $1.00 was well spent. My Root queen died the next spring, being too feeble to start building-up; and the old hive was emptied, the few survivors being united with another colony.

I have been much interested in the queen discussion by Alley, Gallup, and Doolittle; and while many good things were said by them, I think the fact of most importance, both to breeders and to purchasers of queens, is to be found in Doolittle's experience; viz., a queen that has been in the mails, not able to keep up the strength of the colony for honey-gathering, may yet be of great value from which to raise choice queens.

This spring we found a dead mouse between the combs in the lower part of the hive, where it had apparently gone for honey, and met bees instead. It was dried up, and not mummified—i. e.,no wax or propolis on it. The colony was in normal condition, but did not cover more than half of the combs at that time, p. 638.

CLARK S. FUGE.

Oregon City, Ore., July 25.

ANOTHER CASE WHERE BEES EMBALMED A DEAD MOUSE.

The question is asked on page 638 if bees would hermetically seal a dead mouse found in their hive. Yes, they will. Some years ago I put a strong swarm of bees in a hive with an entrance large enough to admit a mouse. Some days after, while working opposite this hive, I espied a mouse inside and near the entrance. As it remained quiet, of course I supposed it to be dead, and thought I would remove it at once; but some business of a pressing nature claimed my attention, and I forgot about the mouse. Some days after, while passing through the bee-yard, I thought of the little rodent. The bees seemed to be working all right. I looked in at the entrance, and saw a small mound. I made an examination, and found that they had furnished him a casket, or hermetically sealed him up. I removed the bees to another hive, and took the board containing the casket and kept it a long time as a curiosity. Finally I broke it open. The composition was in color a bluish gray. The outside was rough, but the inside was nicely polished, and no part of it touched the mouse. His hair was smooth; and his tail, folded closely by his side, looked as though he was enjoying a pleasant sleep. Not the least offensive smell could be detected.

F. C. ROSS.

Onawa, Iowa, July 23, 1903.

BEES AS EMBALMERS; BRINGING SWARMS HOME IN A GUNNY SACK.

In your answer to C. L. Sniffen, on page 638, you say it is doubtful whether the bees would cover up with wax or propolis any thing as large as a dead mouse. A few days before reading your answer I was talking with an old bee-keeper here, Mr. M. B. Robinson, and he told me about once finding a dead mouse in a hive. It was a box hive with two sticks crossed in it. The mouse had lodged on the sticks where they crossed, and the bees had covered it with wax and propolis so that it was completely embalmed. He also told me about seeing some one exhibit an embalmed lizard which had been taken out of a bee-tree, at a bee-keepers' convention at Boonville, Mo., several years ago.

We have a fine crop of white clover here, and the bees are doing well. I have taken 700 lbs. of white honey, mostly extracted, from six colonies, spring count, and increased to nine colonies. The bees are still getting honey from white clover, and the prospect is good for the fall honey-flow. In my twelve years' experience in bee-keeping I have never seen white clover hold on so long.

I astonished the natives one day last week by going out into the country about half a mile on my bicycle, and bringing in a swarm of bees in a gunny sack.

JAS. T. SHACKELFORD.

Napton, Mo., July 27.

[We have had other reports showing that bees are competent to embalm dead animals that prove to be in their way. These reports go to show further that bees are very cleanly in their general habits. If I see a dead bee or two in honey, no feeling of nausea comes to me; but not so in the case of a fly or other insect.—ED.]

SWEET CLOVER PREFERRED TO ALFALFA BY A HORSE; A QUEEN OCCUPYING EMPTY COMBS INSTEAD OF FOUNDATION.

I cut a crop of sweet clover this year, thrashing it for seed, and giving some of the straw to the horse. I found it would pick out the old harsh sweet-clover straw in preference to good alfalfa hay. Of course, the leaves were all thrashed off, leaving just the stems; but the horse was very eager for it, while cows would not touch it.

The hay was not cut until the plants were dead and yellow.

I hived a swarm of bees this spring on full sheets of foundation, and placed an extracting-super full of empty combs over them at once. The queen went right to work filling the super with brood. Last week when I was extracting I took off two full supers of honey, and the bottom of the hive was overflowing with bees, all the foundation being built out and full of brood, but no brood in the supers. Other swarms on which I did not place combs until the hive-body was full had no surplus honey whatever, and were much weaker.

Douglass, Kan. D. E. Rose.

[From my knowledge and experience in the alfalfa country throughout the West, where much sweet clover as well as alfalfa is grown, I should say that the average cow or horse would take alfalfa in preference. It is my impression that, if you were to offer another horse his choice, he would eat the alfalfa first. Sweet clover can be grown very easily on some of the semi-alkali lands; and if stock can be induced to eat it with a relish anywhere near the extent that they will alfalfa, it would be cultivated. There are very few places in the West where I did not see sweet clover, but nowhere did I see it grown as a distinctly hay crop. As in the East. it springs up spontaneously on Western lands; but it very seldom occupies cultivated fields, if I am correct. If this be true it would seem to show that the preference of stock, based on the experience of the ranchers, was decidedly in favor of the alfalfa. I will admit that we have horses and stock here in the East that very often browse on sweet clover in preference to ordinary good grass; and it is far better than some of our wild grasses that grow so rank in our pasture lands.

Your queen, in the case cited, did exactly what I should suppose she would. She would occupy drawn-out combs in preference to foundation. As a rule, a colony will make the center of its brood-nest on the drawn comb, and then gradually work both ways on the foundation after it is drawn into combs. Your experience in getting more honey from the hive with drawn combs is nothing unusual; indeed, it is generally considered that there is no better capital in a bee-yard than good combs. While foundation serves an excellent purpose for the hiving of shaken or natural swarms on, in order that the bees may be forced into the supers, yet in the production of extracted honey it will not compare with the completed combs.—Ed.]

MORE BEES POISONED FROM SPRAYING.

With regard to the poisoning of bees here, and as evidence to the same, I can only say that the poisoning of bees has never been noticeable to me with the exception of last May. I perhaps am wrong; but if so, it is certainly a mystery to me, as, upon entering the bee-yard (which but a day or so before was all bustle and hum), it was quite noticeable to me that there was a great reduction in the flight of bees; and at the same time beautiful weather prevailed with dandelion, gooseberry, etc., yielding abundance of honey. One colony I examined had few bees flying, and a few sickly ones crawling about the entrance. This colony but a few days previous covered three to four frames, I would say half full of brood, with new honey stored round the top of each, and one or two back ones (being a Jones hive), with preparation to cap begun in odd places. Not a worker seemed to be left, as I could handle them without smoke. There was brood in all stages in the frames, with apparently nothing but the young downy bees with their queen to care for it, and which could not be covered by them. A few of the neighbors confessed to poisoning their gooseberries at the very time of the disappearance of the bees, thinking it no harm; but none live nearer than ⅜ to ½ a mile from the bees.

In the case of the one I examined, the queen laid from one to four eggs in a cell. Where did the workers go? This colony I lost with a few others, and with plenty of honey still in the frames. Am I wrong in saying it was a case of poisoning?

Notwithstanding the apparent reduction I had in bees in the early part of the season, I have secured from 37 colonies over 3100 lbs. I expected better results, but the season was disappointing at times by occasional cold waves, one of these coming right in the begining of basswood bloom, which is my best source for honey.

George W. Strangway.

Elora, Ont., Canada.

[From the evidence you have presented, I see no reason to doubt that your bees were poisoned; and if I were you I would enter into some amicable arrangement with the neighbors by which this loss on your part can be avoided. The fact that poisonous liquids are administered to plants where there is no nectar or pollen would surely seem to indicate that the bees were short of water, and took this means of supplying themselves. In that case you had better distribute water-troughs of pure water all about the apiary, during the time the gooseberries are being sprayed.—Ed.]

MORE SPRAYING, AND MORE BEES KILLED.

I notice on page 676 that you desire a report of those who had bees poisoned by fruit-growers who had sprayed during full bloom. I am glad you made the request, as I think such a report may have a good influence. Last year I had my colonies very strong in order to get as much of the apple honey as possible, that being my favorite honey; and just when the bees began to store rapidly I noticed all at once thousands of them dropping around the house-apiary and in my yard; and my colonies were depopulated a half, if not more, in two days' time. I was satisfied that poison had been used in spraying fruit-bloom, and immediately made inquiry. All parties denied spraying, yet I found that one had purchased a fruit-sprayer and had sprayed his trees at that time, even though he denied doing so. However, I made a public announcement that the party or parties who killed my bees by spraying his fruit during the time of bloom would also destroy his own fruit, and my prediction proved true; for the same party that had sprayed his trees at that time scarcely had any sound fruit, while an orchard within a stone's throw had hundreds of bushels of fine matured fruit, and no spraying whatever had been done; so I guess there will not be any more spraying done during full bloom in this section. J. A. GOLDEN.

Reinersville, O., Aug. 6.

IS HONEY-DEW SUITABLE FOR A WINTER FOOD?

Will you kindly state whether it is positively known that honey-dew is injurious to winter bees on? There is considerable on the beech-trees and saplings, and bees are working on it at present. It is rather interesting to watch the insects move around on the trees, having what appears to be a tail made of a bunch of cotton, and this the air keeps in continual motion. I cut off a beech-twig having on it a lot of the insects, and the jarring of the twig brought down minute drops of the slightly sticky fluid.

G. B. WESTON.

[Bees have been known to winter well on honey-dew; but in view of the fact that this food is quite liable to bring on dysentery in the spring—is almost sure to—it would be advisable to extract it out and give them good food instead. I know of nothing better or cheaper than a syrup made of granulated sugar. Honey-dew will do very well for stimulating in the spring after cold weather is past.—ED.]

FEEDING OUTDOORS; ROBBING, ETC.

1. Would a swarm isolated a mile or so from all others, fed in the open air, and not placed in the bee-house until too cold for robbing, be likely to begin robbing in the spring?

2. Does feeding from the Miller feeder tend to promote robbing?

3. Would it be detrimental to a swarm to use fences similar to those used between plain sections, between the brood-combs while they were being formed to insure their straightness? A. V. DOUD.

Bristol, N. H., July 22.

[1. A colony isolated a mile or so from the others, and fed in the open air, would not rob nor be the cause of robbing, either at the time of being fed or in the following spring. Even if the bees had been robbing during the previous fall, the memory of their previous experience would probably disappear entirely the ensuing spring, even if a large proportion of the bees didn't die off. But bees taught to rob any time during the summer are liable to rob again in a short time, because they will remember their gala day of plunder, and they are quite apt to go back to their old haunts where first they discovered the booty.

2. The Miller feeder does not promote robbing provided it does not leak and is not filled too full.

3. Fences such as are described can be used for getting evenly drawn combs from foundation.—ED.]

WHEN TO TAKE OFF SUPERS; SYRUP, HOW MAKE, ETC.

There is considerable white clover in bloom, and bees are swarming. How long should I leave the supers on so that the bees can gather enough for winter stores?

What proportion of sugar and water would you mix together to make a syrup to feed for winter stores?

When should one commence to feed for winter, and how much in a day?

How much sulphuric acid would you put into a gallon of water to render wax? Will it corrode a brass kettle?

L. H. LINDEMUTH.

Lehmaster, Pa., Aug. 14.

[If you have been having white clover in bloom, and bees are swarming at the date of your letter, the condition is quite unusual for this part of the country. As long as the bees are storing honey in the supers, leave them on, of course, but the minute they stop, take off the finished sections at least, otherwise they will be soiled.

In feeding, use a mixture of sugar and water, half and half, or a pail of water and a pail of sugar by measure. The bees should be fed up not later than October 1.

The amount of sulphuric acid to use in water to refine wax will depend upon how dirty or discolored the wax is. The solution may be anywhere from one part of acid to 50 or 100 parts of water. If the wax is not very dirty, 200 parts of water to one of acid will be sufficient. It is very seldom that you would want to use a solution as strong as one in fifty. If you use the weaker solution it probably will not corrode the kettle much; but when through using, wash it out thoroughly with soapsuds and hot water.—ED.]

Where does the bee carry its comb? Does it carry any on its legs? When is the proper time to add new queens to the colony, spring or fall? ROBT. PETERSON.

Carl Junction, Mo., Aug. 11.

[Bees do not carry comb, but secrete the wax for it between the scales on the under side of the abdomen. It is then picked up in the mandibles by other bees, and used for comb-building. Pollen and sometimes propolis are carried on the legs, and in rare instances wax. A new queen usually should be given to a colony after the main honey-flow.—ED.]

OUR HOMES,

BY A. I. ROOT.

In all thy ways acknowledge him, and he shall direct thy paths.—PROV. 3:6.

As you have seen by the journals, our carload of bee-keepers started from Chicago on Wednesday evening, Aug. 12, and I believe it was not until after we started that I learned we would reach the Grand Canyon at 5 on Saturday evening, and would leave at 9:30 on Monday morning, so as to give the bee-keepers all *Sunday* to explore. When I asked how such an arrangement came to be made, nobody seemed to know. Probably the railroad company thought that *that* would be exactly what the bee-keepers would want. I could have told them better, and would have been glad to do so had I been consulted. As it was, perhaps I am as much at fault as any one, because I did not in time look out for such a state of affairs. I am glad to say our car of eighteen bee-keepers, men and women, were mostly professing Christians. We sang gospel hymns, and talked temperance, Sabbath observance, etc., almost as a carload of Endeavorers might have done; and some one remarked he had not seen one of *our* crowd in the smoking-car at all. This is a little remarkable, and perhaps it is owing to the fact that the editors of our bee-journals are "clean men" right through.

Well, there was much discussion as to what we ought to do under the circumstances about exploring the canyon on Sunday. Many inquired, a little anxiously, perhaps, what *A. I. Root* was going to do. Of course, they looked to Dr. Miller, Editor York and his good wife, and others, in much the same way; but as your humble servant has in years past been a little more vehement than the rest in denouncing Sunday excursions, it seemed to center somewhat on him. I am free to confess I was puzzled as to what I ought to do, or, if you choose, as to what *God* would have me do that Sabbath day. As all would be up early, we arranged for a morning service at six o'clock.

Our train dropped us Saturday evening on the brink of that awful chasm; and every soul of us, as we gazed down, admitted the sight was worth all it cost, and was worthy of all that had been said about it. The human eye, unused to such vast depths, at first failed utterly to take it in. Our guide pointed out to us some white objects, part way down, and asked us to guess what they were. I said they looked like five-cent sacks of salt that some one had dropped. What I called a sack of salt was really a group of *eight* tents, or sleeping-rooms, belonging to the hotel below. Part way down on the trail they looked like Simplicity bee-hives painted white. These tents were 3100 feet straight down, three miles distant on a bee-line, and *five* miles along the trail.

There were trips out along the rim, both ways; and if we thought best not to take the long trip down to the great river (a full mile straight down, and *eight* miles along the trail), we could take the side trip above. What would be the right and proper thing for a body of Christian people to do on that Sabbath day? I, like many of the rest, had looked forward to this trip almost all my life; and but few if any of us would ever see it again. I went part way down the trail Saturday night, and came up after dark. I was more and more fascinated with every step I took down; and as it was bright moonlight after midnight, I tried to get the manager of the horses to take me down by moonlight Monday morning, and get me back by train time. He flatly refused. I meditated walking down before breakfast, and back before train time; but I knew that, at my age, it would be more than I had any right to undertake. God knows I tell it truly when I say I decided to go away and not take the trip. I had so decided at the morning service; but I concluded it was best not to say so to the rest. Mr. and Mrs. York, at this service, by their beautiful rendering of familiar hymns (assisted by Dr. Miller, of course), made it a most enjoyable meeting. I spoke on the text at the head of this paper, and was happy, even though I had decided to stay all day at the hotel, or near it. I think that God was pleased, if I may so express it, at my willingness to give up *for his sake*. Now, dear friends, do not think me visionary when I say I feel that, *after* thus giving up, he bade me go. I know I am approaching dangerous ground for a spiritual teacher to take, but I believe there is solid rock under my feet.

Our service was over, and I went out near the brink. I had said to some I would advise avoiding hiring horses or setting anybody to *work* on Sunday, as far as possible, and a little crowd of bee-keepers was starting out *on foot*. Only one of our number rode a pony. I said, "Why, boys, if you are going on foot, take off your coats, and, better, vests too. Do not carry an ounce more than you are obliged to. Then you have no canes. You must all get a stout light cane, and, *above all*, each one must carry a bottle of water. It is five miles over the hardest road you ever traveled before you can get a drop of water."

Now, it was right here that the Holy Spirit told me to go with these friends and be *one* of them; at least I felt so then, and I feel so now. I felt very sure that I could contribute to their comfort and happiness, and God gave me strength and endurance that day that made me praise him all day long. We sat down often, and took in the grandeur of that scene. We had confidential talks while we rested; and when we reached a beautiful spring, near the tents, we bathed, not only our dirty hands and faces, but our tired and sometimes sore feet.

Now, lest I leave the impression that it may not be so *very* bad to *plan* a Sunday excursion, let me give you an incident. As we were washing in the brook we saw two men cutting wood to bring in to the hotel, on mules. As we sat at dinner in the tent, one of our party said:

"I was never more astonished in my life than when I saw those men cutting wood, and drawing it in on Sunday."

The remark was made so loud the two men at another table heard it. I saw the face of one flush a little, and feared we should have a jangle there on Sunday. Soon his reply came, in an even and steady tone:

"And I was never more astonished in *my* life than when I saw your crew coming down here on a 'Sunday excursion.' And after all the profession you fellows make, I should like to know who is most guilty. One of you has been kind enough to say we have given you a good dinner; but this dinner gave us a lot of work, and hard work too."

The man was right. I for one felt the justice and fairness of his rebuke, and I resolved then and there to take *still* more care not to be again entrapped in a Sunday excursion.

We did not take the long trip down to the brink of the river, but followed a path to the edge of a precipice where we could see the yellow muddy waters of the Colorado River where it rushed between the rocks, for four or five miles, but it was 1000 feet or more below where we stood, and nearly straight down. It looked almost as if one could wade through it; but a man who had been down to the water's edge said it was too wide to throw a stone across it. We started from the tents about 2 P. M. to walk up the trail, and took it very leisurely, stopping often to sit down and gaze at the dizzy heights above us. The eye can take in the *real* distance above far better than in looking down. I do not know why this is so. In going up, a queer optical illusion confronted us almost constantly. The wall of rock in front seemed solid, without any possible opening; but when we marched right up to where it seemed the trail *must* enter a tunnel, an opening canyon gradually unfolded. One of our party said his heart was beating so hard he feared palpitation that had troubled him when a boy; and as he feared to be alone he asked me to slow up with him; and as I was pretty tired too we fell behind the rest. Well, when the first ones reached the hotel my friends were so anxious about me, mainly on account of my age, they sent a man with two saddle-horses after me. This cost $1.50, the usual price for bringing up one who gives out on the way. We planned in the morning to go on foot, so as to avoid hiring any one to *work* on Sunday. Some of the crowd carried their dinner, for this reason. I knew *I* should need a good square meal; and as the price was 75 cts. at either place, I reasoned it would be no worse to get it below. You see how it turned out. In spite of my planning, two men worked hard to get up my dinner, and a man and two horses came after me toward night. As it was, I appreciated seeing the strength of a horse take the place of my own; and I also keenly enjoyed watching the horse as he skillfully planted his feet in making the difficult passages, climbing rocky stairs, etc. I do not suppose a horse will ever fall if he has the full rein, and is allowed to decide for himself if it is possible for him to make the passage. A thousand feet or more straight down has no terrors for these trained mountain horses. All horses are shy of going where the footing is insecure; but when they can see and *feel* the solid rock under their feet, and when they can also see where other horses have gone before them, they soon bring into play their excellent judgment, or, perhaps I should say, "horse sense." Monday I felt so well and strong I walked part way down the trail again just for the fun of it; but *Tuesday* my muscles were so sore I could hardly walk until I had got limbered up; and I didn't get entirely over this soreness of the muscles for three or four days.

Before the train left, we took a carriage-drive to Rowe's Point, where the river is visible in three different places. At Sentinel Point the cliff is a full mile higher than the water in the river. A glass is a great aid in looking off these great elevations; but even with the glass, the human eye refuses, as it were, to recognize these vast distances. At the hotel we were told Rowe's Point was three miles distant. The books say it is 1¾ miles; and those of our party who went on foot thought it even less. You can make big wages going on foot. Quite a few ladies make the whole canyon on foot. We had a very pleasant talk with two who had made Yosemite, and were then making the eight-mile trail at Grand Canyon. These two women were alone and unattended.

Our party all voted, I think, that the Grand Canyon is worthy of all that has been said about it; and I do not know that I ever heard of any one who felt disappointed when he came to see it.

Now a concluding word in regard to our text. If we acknowledge God in all our ways he *will* direct our paths; but we can not, as a rule, lay out paths for others; and oftentimes we can not even lay out paths for ourselves. Furthermore, God often calls on us to tread *unexpected* paths.

ALUMINUM INSTEAD OF TIN.

Mr. Root:—Use an aluminum stew-pan with which to heat water and do your cooking, as related in GLEANINGS for June 15. I think you will find it quicker and better than tinware. WALLACE R. MOSES.

West Palm Beach, Fla., June 25.

HEALTH NOTES

BY A. I. ROOT

THE HOTTEST PLACE IN THE UNITED STATES.

We have often heard it said that Yuma, Arizona, is the warmest place in the United States, and many jokes are "cracked" in regard to the heat; but whether it be true or not, I can not say. On Thursday evening, August 27, between 10 and 11 o'clock (the train being late), I went to a hotel in Sentinel, Ariz., for lodging. Sentinel is about 100 miles east of Yuma. The landlord was asleep on a bed out in the dooryard, and I told him I should much prefer a bed out under the stars to one in the house. He pointed to one ready for me, which I had not until then noticed. He opened a door near by, and said I could leave my grip and clothing inside if I chose. Before retiring — come to think of it, was there *really* any "retiring" about it? Well, before going to bed I asked:

"Have you some good drinking-water that won't make me sick?"

Let me explain a little. The kind friends in California, after the convention was over, gave me so many samples of their nice fruit to "just taste," I was having my old trouble of indigestion. I had been dieting on milk toast and such, without any apparent relief, until I was pretty miserable. I was not a little surprised to hear my host so positive concerning two things—first, that it *wouldn't rain*, even if it did continue to lighten; and, next, that the water he brought me would make me *well*, and not worse, no matter how bad my trouble was. The water wasn't very cold, but I was so thirsty (I found by many trials that the ice water on the train would not do for *me* at all), I drank quite freely, thinking I would take my chances. The next morning I was much better. The bad taste had all gone from my mouth, and I drank freely of the water he had so positively declared never had and never *would* hurt anybody. The water was pumped by the railroad company from a well 1200 feet deep. It was identical with the water at the celebrated Agua Caliente springs, ten miles away, and was too hot to drink as it came from the well. In all this region the water is cooled by being hung in the shade, in a canteen covered with burlap, the latter being kept constantly wet. When you are out on the desert, your water to drink is always carried in these covered canteens. I slept nicely, although the temperature was between 90 and 100. The agent over at the depot showed me the daily record from the Weather Bureau, and I found that only a few days before the heat had been, at 2 in the afternoon, 118° in the shade. At breakfast I ate the first good square meal for several days, drinking freely of this artesian water, for there is none other for miles around, and I am happy to tell you I have for four days since eaten what I chose, with a good appetite, three times a day, and have never had a healthier digestion in my life. Is it because this water is one of my latest "fads," or has it really wonderful virtues? I will tell you all I know about it, and you may draw your own conclusions.

I told you last winter of my comical experiences in Cuba in trying to get my Spanish friends to give me a drink of hot water when out in the country, before I had learned to say "agua caliente." Well, when my brother, J. H. Root, urged me to make him a visit, as he had something to show that would interest me greatly, I had to laugh outright at the familiar words, "Agua Caliente" (water hot) as his *post-office*.

In due time we had spanned the ten miles over the dry and sandy desert. Not a drop of water was passed until we reached the springs. It seldom rains here, winter or summer, and there is not a particle of dew. In many places there is almost no vegetation, and this makes it all the more welcome to see the springs with their babbling brooks when we get near the town. There are in all, perhaps, 15 or 20 springs, giving a flow of hot water of about 90 miner's inches all together. The water is so hot you think at first you can not bear it for a bath; but in a little time your body becomes inured to the heat, so most people find it pleasant. Many find it weakening if they stay in very long; but I do not find it so. Below is the analysis:

	Parts in 100,000
Sodium chloride, NaCl (common salt) . .	32.00
Sodium carbonate, Na^2CO^3	5.30
Sodium silicate, Na^2SiO^3	8.02
Sodium sulphate, No^2SO^4 (Glauber salts) .	15.00
Potassium sulphate, K^2SO^4	1.57
Calcium sulphate, $CaSO^4$ (gypsum) .	3.95
Magnesium sulphate, $MgSO^4$ (Epsom salts).	1.62
Magnesium carbonate, $MgCO^3$	0.46
Iron and alumina, Fe^2O^3 and Al^2O^3 . .	0.30
	68.22
Lithium	trace

The most of the people who come here are cripples or invalids—perhaps more who are troubled with rheumatism than any thing else. Deafness, especially where the trouble is catarrh, is often relieved in a very few days. First, you drink all the water you can, before meals and after, when you go to bed or when you get up, and they say it always helps digestion at once. It has proved strangely true in my case. Next you bathe in the "healing waters" every day or oftener. It makes one *wonderfully* clean, without soap. Then you get your head under water and make it run into your ears, and snuff it up your nose. You know I have for years urged this with common hot water. This treatment, with a daily temperature of from 90 to 110°, would very naturally cleanse the breathing-passages, and prove beneficial. As to whether it will be a lasting benefit, I can not answer. Scores of people go away benefited, and many claim they are permanently cured. Many say they get relief here, after having tried, with little or no benefit, the other hot springs of the world. For my part, I think I never felt so clean before in my life as I do now as I sit here and write at a temperature of 110° at 2 P. M. Instead of feeling depressed I feel just like work. I wear only the very lightest clothing. At night we wear only a very thin nightgown; and as my brother and I are up before the rest of the neighborhood, we often go about in our nightgowns, lifting them up in "oriental" fashion when we want to walk.

I am much interested in our "iceless refrigerator." They are manufactured and kept for sale in this region. It looks like a common refrigerator, but the sides are of slats, like window-blinds. Inside the slats are sheets of burlap kept constantly wet by a tank on top that lets water drop on each of the four cloth sides. The dry air of this region keeps up an evaporation that reduces the temperature so that butter, milk, etc., keep in very good condition.

The fact that our government holds three of the best springs for the free use of the public gives me confidence in them. All but these three are owned by the hotel, and the usual price is 25 cents for the use of the houses built over them. Many come here with troublesome sores,* and the drinking and bathing certainly seem to have a beneficial effect that may well entitle the springs to be called the fountains of "healing waters." A monument of stones stands on the mountain just back of us, built by a lady with her own hands, as a memorial of her cure from rheumatism. She was so perfectly cured that she not only climbed the mountain but carried the stones and piled them up.

Lest I be accused again of mentioning only the roses and not the thorns, I will add that the place as it is now is not inviting. Tin cans, left by campers, are scattered about everywhere. The principal owner of the place is at present expending considerable money in various improvements. One naturally expects shade-trees and flowers in the vicinity of springs; but they are lacking here. One reason given is. the water is too hot for any thing to grow; but there are a few kinds of wild flowers blooming along the banks of the hot-water streams. There are no cold-water springs, such as we have in the East; but there are springs where the flow is very small, with a temperature nearly normal. The stronger the flow, the higher the temperature, as a rule.

We are told the Indians used these hot springs for the cure of disease, before the white man came; and from the fact that our government endorses and extends its protection over them I think we may thank God for these "healing waters" that come so directly and so freely from his own loving hand.

WINTER OR SAND VETCH — MORE ABOUT IT.

On page 689, Aug. 1, I mentioned sending some of the plants and roots to our Ohio Experiment Station. Below is what they say in regard to it:

Mr. Root:—Yours with plant is just at hand. The plant is, as you suppose, the sand vetch, more commonly known as hairy vetch It is a very useful plant in some localities, especially on sandy soil. It seems to me that, if the soil could be kept covered with it during the winter, and plowed under in the spring, it would help to keep up the soil fertility; at least it has been used that way in many localities. It does better further north than it does here; but we have been growing it for some time I believe it can be used as a cover crop in orchards. We are trying it for that purpose. It is somewhat difficult to cut for hay, because it lies very flat on the ground; but when sown with rye the two can be cut quite early in the season. The rye supports the vetch, and makes it possible to make hay out it. It is valuable for hay. It should be sown early in the fall. W. J. GREEN.

Wooster, Ohio, July 3.

We also add a couple of letters:

Mr. Root—You ask if any reader knows any thing about wild sweet peas. One year ago I traveled over the Canadian Northwest Territory, and in many places I saw this pea and the seed ripe, and I, like you, thought it might be useful, so I put forty or fifty seeds in my pocket, and brought them home. Last April I took them with others out to plant; but being called away I set them down in a tin, and forgot them. Snow came and I could not find them for about three days; then they were soaked and pounded as I sowed them, but not one grew; but a few grains of oats and wheat grew that were with them. I think that, where they grow wild, children could gather the seed very easily, as the pods grow in bunches; and I saw them growing plentifully on prairie among weeds, bushes, etc. In my opinion this pea has been the natural food of the prairie-chickens in winter, as it holds its pods above the snow. JAMES R. BELLAMY.

Black Bank, Ont., Can., Aug. 5

I was not satisfied with the recommendations of this plant given by seed firms. I sent to the Department of Agriculture and received promptly their circular on sand vetch, which I inclose. I sent to a seed company and bought some sand-vetch seed and sowed a row 250 feet long in my experiment grounds, where I sowed a few cow peas and soy beans, all on the same day—June 26, 1902. The vetch made a luxuriant growth until winter set it, when it stopped growing until April last, when it started growing again; and by the middle of May it made as thrifty growth as the plant in your patch. The vetch dried up about the middle of July. The hot sun dried up the bloom almost too fast, and it grew very few seeds. I sowed a quarter of an acre this spring, which is just beginning to bloom.

Ogden, Ill., Aug. 3. B D HALL.

With the above, friend Hall incloses a circular from the United States Department of Agriculture, published in October, 1895. It gives a very full account of the plant, directions for cultivation, etc. The name given is hairy vetch, sand vetch, or Russian vetch—*Vicia villosa*. The remarkable thing to me about this plant is that such a valuable forage-plant should be found growing wild in the woods and fields over such a large extent of territory.

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*Of course, the question will arise, "Is it safe to bathe where so many come with maladies that can hardly be named in print? Is there no danger of contracting something worse than what you have already, especially if you bathe in springs owned by the government, and free to all?" I have looked this matter all over, making careful inquiry. With the great volume of water flowing through these bath-houses, every thing is washed out very quickly. By throwing twigs on the water you can see how quickly every thing goes out and down the stream. People who live below for several miles, however are careful not to *drink* the water from the springs, unless carried from the head in barrels. The houses where admittance is charged, are, of course, used very much less than the "free" ones.

Long Tongues Valuable

South as well as North.

How Moore's strain of Italians roll in honey down in Texas.

Hutto, Tex., Nov. 19, 1902.

*J. P. Moore.—Dear Sir:—*I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens. Yours truly,

HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongued bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5; dozen, $9.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.

Pendleton County.

Laws' Leather-colored Queens.
Laws' Improved Golden Queens.
Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent.* My apiary stocked with your *Leather* queens is a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 48,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

Prices of Queens: Each, $1.00; 12, $10.00. Breeders, extra fine, guaranteed, each $3.00. Send for price list.

W. H. Laws, Beeville, Texas.

The Best Honey Queens

ON RECORD

Are those reared by The BEE & HONEY CO., Will Atchley, Manager. We breed six distinct races in their purity, from 6 to 35 miles apart, queens ready to go now. We make a specialty of one, two, and three frame nuclei and queens in large lots. Write for prices, they will astonish you. Untested queens of either race, 75c each; $4.25 for six; $8.00 per dozen. Tested, $1.50 to $3.00 each. Breeders, the best that money can buy, $5.00 each. We guarantee safe arrival and perfect satisfaction. Address all orders to

The BEE & HONEY CO.,
Beeville, Box 79. Bee Co., Tex.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holyland's, Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1.00 each; $5.00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Red Clover and Three and Five Banded Queens.

Untested, 75 cts.; $7 per doz. Fine tested queens, $1.00 each. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens go by return mail. Fifty and one hundred, special prices.

G. ROUTZAHN, BIGLERVILLE, ROUTE 3, PENN.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

QUEENS. 3 and 5 Banded, or Golden Long-tongued Bees.

The best for the least money, direct from the breeder. Untested, 55 cts. each; 6 for $3.25; 12 for $6.45. Tested, $1.00 each. Breeders, $3.00 each.

My bees are not excelled by any. Have 700 nuclei. Sent by return mail. This is a postal money-order office. Mention Gleanings when ordering.

DANIEL WURTH,
Karnes City, Karnes Co., Texas.

..Very Satisfactory..

The four dozen queens I got of you last year are very satisfactory, being good honey-gatherers, and gentle, and finely marked.

CHAS. STEWART,
Sammonsville, N. Y.
June 19, 1903. State Bee Inspector, 3rd Div.

To induce a trial we offer WARRANTED queens at 75c, six for $3 50; fine select, $1.00, six for $4.50. Queens sent promptly; satisfaction guaranteed. Hybrids or poor queens replaced free.

J. B. CASE, Port Orange, Fla.

Geo. J. Vande Vord

Queen-breeder. **Daytonia, Fla.**

100 = Mounted = Queen-cells

and one sample of the Stanley Cell-protector or Introducing-cage, for 70 cents postpaid.

Arthur Stanley, Dixon, Illinois.

Root's Goods in Central Michigan!

Special prices until April 1, 1904. Write your wants; let me name prices. Supplies exchanged for honey.

W. D. Soper, R. D. No. 5, Jackson, Mich.

End of the Season Problems

are discussed by such mem as R. L. Taylor, H R. Boardman, M. A. Gill and Jas. A. Green, in the July and August issues of the Bee-Keepers' Review.

Send ten cents for these two issues, and another different issue will be sent with them, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling the holder to the Review one year for **only 90 cts.**

W. Z. Hutchinson, = Flint, Mich.

NOTICE!

This may be the last time this queen advertisement will appear for this season, so hurry up your orders as it is getting late. *Will send queens by return mail*, so long as they last, for balance of the season.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa., writes: Your bees beat all the rest, now send me a breeder of the same kind.

A Norton, Monterey, Calif., writes: Your stock excels the strain of Mr.——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens After July First.

	1	6	12
Selected	$ 75	$4 00	$7 00
Tested	1 00	5 00	9 00
Select Tested	1 50	8 00	
Extra Selected Tested—the best that money can buy	3 00		
Two-frame Nuclei, no Queen	2 00		

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Ho! Bee-keepers! Attention!

We are again rearing the best of queens for market. We have 1000 colonies of bees, the best stock, and 10 years' experience. We have either Golden Italians or three banders. Price, 75 cts. each; $4.25 for 6; $8.00 for 12; tested, $1.50. Safe arrival and satisfaction. Give us a trial. All orders filled promptly.

TEXAS BEE-KEEPERS

We keep a large stock of honey-cans of all sizes ready for prompt shipments. Get our prices. We also want all the section and bulk comb honey that we can buy, and will take some No. 1 extracted. We pay spot cash. Write us.

The Hyde Bee Company, Floresville, Texas.

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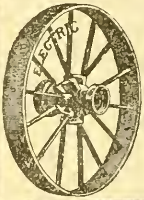
is usually in the wheel. They receive the strain and wear. They dry out, spokes and feloes rot, tires come loose. Get the service out of wheels you do out of gears by using

Electric Metal Wheels.



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If you are interested in Cuba and want the truth about it, subscribe for the

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the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

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Plymouth Cream Extractor is the CREAM of them all. Inner can quickly removable; water all around and under milk; has far greater cooling surface than any other. No water required 5 months in year. Special air chamber with ventilator. New and original faucet, impossible to leak or sour. *Express charges prepaid.* Catalogue free.

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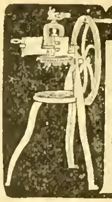
"THIS FOR THAT," K-6, STAR BUILDING, CHICAGO, ILL.

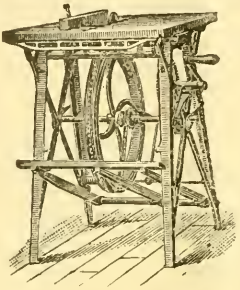


MANN'S LATEST MODEL BONE CUTTER MAKES HENS PAY

because it gives them food that makes them lay. Open hopper and automatic feed make cutting always easy. Sent on

TEN DAYS' FREE TRIAL.

No pay until you prove that it cuts faster and easier than any other. Isn't that better for you than to pay cash in advance for a machine you never tried? Catalogue free.
F. W. MANN CO., Box 37, Milford, Mass.



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Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc. Machines on Trial. Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
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200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

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one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. John W. White,
Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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They Wear the Blue Jackets.

Since the introduction of these extractors some 14 years ago to the bee-keeping world, we have been experimenting with a view to eliminating weak points, and perfecting the stronger ones.

All Sizes. We manufacture all sizes of extractors from the small 2-frame to the 4 and 6 and 8-frame machine-power (power machines made to order only). The can part of these extractors is made of galvanized iron covered with blue japanning, and neatly lettered.

Galvanized. The comb-baskets are galvanized wire, well braced; the hinges, hoops, cross arms, and other metal parts, are galvanized after finishing, something you will get in no other on the market.

Band-brake. All four, six, and eight frame machines are provided with band-brake, which permits of the stopping of the machine instantly, without danger of breakage. These machines have large metal handles. Ball bearings are used which make them very light running. The honey-gates are large, which does not require the stopping of work to allow the honey to run out.

For sale by all large dealers in Bee Supplies.

MANUFACTURED BY

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4,000,000 PEACH TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address **J. C. HALE, Winchester, Tenn.**

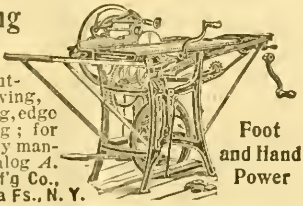
Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago, Ills.

Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

BUY YOUR TREES AT WHOLESALE PRICES DIRECT FROM The GROWER

Full Line. Best Stock. Low Prices.

Write for FREE Catalog.

GROVER NURSERY CO., ROCHESTER, N. Y.

Victor's Superior Italians

go by return mail again. Owing to several large queen contracts, a contract for a *solid carload* of bees that went to Colorado, 85 three-frame nuclei to same State, numerous smaller orders for bees, and a good queen trade, it has been necessary for me to cut out my ad. for the past three months to keep from being swamped with orders. I am glad to notify my patrons that I am at last able to fill orders promptly with as fine queens as ever headed a colony, regardless of their source, at the following reasonable prices :

1 Untested queen, 75c ; six, $4.00.
1 Select untested queen, 90c ; six, $5.00.
1 Tested queen, $1.00 : six, $6.00.
1 Select tested queen, $1.50 ; six, $8.50.

Breeders, $3 00 to $7.00 — these are as good as the best.

W. O. Victor, Wharton, Tex.

Queen-specialist.

Warranted Queens.

L. H. Robey, Dear Sir:—Enclosed find one dollar and twenty cents ($1 20) for which you will please send me two (2) warranted queens. The queens you sent me last year have proved to be excellent. I introduced one into a three-frame nucleus on Aug. 22, 1902, and on Aug. 25, 1903, I took 228 lbs. of comb honey, leaving 10 Hoffman frames in the brood-chamber for the coming winter; that is very good for a nucleus. Be sure to give my street number, 525 Dakota St, for the queens you sent me last year were carried to another Wm. Zimmerman, and I did not get them until the next day. WM ZIMMERMAN.

San Antonio, Texas.

Warranted queens, 60 cts. each in any quantity. Satisfaction guaranteed or money refunded

L. H ROBEY, WORTHINGTON, W. VA.

Circular Free.

Apiary for Sale.

Owing to my age I have decided to sell my yard of 16 colonies, with extra hives, supplies, etc. Price only $75 for the entire outfit. Some colonies have made 75 lbs. each, comb honey, this season. A bargain. Call on or address

R. L. Holman, Springfield, O.

Sections, Shipping Cases, Honey Cases,

and every thing necessary for the bee keeper.

FINE ITALIAN QUEENS.

Prompt shipping. Catalog Free.

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WE WANT YOU AS A PARTNER

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GUARANTEE you at least 7 per cent on your investment, with additional profits of from 15 to 40 per cent per year.
GUARANTEE to save you at least 25 p.c. on every thing you buy from our catalog, and a special 5 p.c. discount if a shareholder.
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MERCHANDISING is the money-maker of the age. Of all the great money-making department stores, THE MAIL-ORDER DEPARTMENT STORE is the greatest. Its line comprises everything from a needle to a threshing-machine. Everything the people eat, wear, and use from the cradle to the grave. Its field is not limited by city and suburban limitations, but extends to every town of the country and every country on the globe. It requires less capital to do an unlimited amount of business than any other mercantile or manufacturing enterprise. Its expenses—selling or fixed—are less than in any other business. It is a strictly cash business. It has no losses. It does not depend on seasons or local conditions. It is a "hard times" business. It does not even depend on prosperity. Its profits are immense.

An Investment of Less than $40,000 Yielded Over a Million Dollars in Cash in Less than Six Years in One of the Chicago Mail-Order Houses.

All this is fully explained in a book which we want to send you free of all charges—on request. The book gives the complete history and earning power of the mail-order business. It gives statistics showing that the famous co-operative stores in England cleared over 40 per cent on the investment last year. We have reorganized our old-established mail-order business under the co-operative system. We want to interest you (no matter how large or small your capital) and we know you will be deeply interested if you let us send you our free book. It's a mine of interesting business information. It will make you either a shareholder (shares are $10 each) or a customer. IF YOU BECOME A SHAREHOLDER you will find your investment the best and safest you have ever made—you buy into an old-established growing and successful business. IF YOU BECOME A CUSTOMER it will save you at least 25 per cent on every thing you buy.

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REFERENCES: First National Bank, Chicago, Depository; Metropolitan Trust & Savings Bank, Chicago, Registrars; Messrs. Lord & Thomas, Adv. Agency; Dun's or Bradstreet's Mercantile Agency; any railroad or express company. The publishers of this or any newspaper or magazine. Any bank or reputable business house in Chicago.

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Gentlemen:—Please send your complete "Book of Information" and all literature pertaining to your Co operative mail-order business.

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It is understood that above will be sent to me free of all charges and that I am under no obligation whatsoever to subscribe. GLEANINGS IN BEE CULTURE.

Investors! Consumers!

You are invited to become a partner in this great business!

and share in its profits in the exact proportion of your contribution to the capital and the amount of goods you buy, and which are bought by all our other customers.

We have divided the capital into shares of $10.00 each, so that you, even if you have the most modest means, can take advantage of this truly wonderful opportunity to—

1--Invest your money and draw dividends of no less than 7 per cent each and every year, with the possibility of earning as high as 10 per cent and more on every dollar invested.

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3--Make money by co-operating with us and get a commission of 5 per cent on all the new business you help us to get.

Our "book of informarion" fully explains all the particulars of our plan, and we advise you to send for this book and read it from cover to cover, and become a member and co-partner of our society as soon as possible, even if you start with but a few shares, and thereby obtain the immense advantages which we offer.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
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The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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Special Notice
Special Notices
By Our Business Manager

A CORRECTION.

By a typographical error in our last issue, Mr. Alley, in his advertisement, is caused to speak of 2-lb. supers. It should be 24-lb.

Now is the time to buy your supplies for next season. Seven per cent discount for cash with order before October 1.

HONEY MARKET.

We are having a brisk demand for honey, both comb and extracted, at fair prices. The inquiry is especially strong from the East and South, where there was a short crop this season. There is plenty of honey to go around this year, and the home markets should be developed to their fullest capacity. Use "Food Value of Honey," a leaflet which we furnish, and circulate it freely. Keep the subject before the people. Give away trial samples, and by every fair and energetic means stimulate the demand for honey. Thousands of people who rarely if ever taste honey would become regular customers if it were brought to their attention in the right way.

AIKIN HONEY-BAGS.

I believe all orders are now filled for Aikin honey-bags, and we have a surplus stock on hand ready to furnish promptly. Two complaints received regarding leakage call for a word of caution in using paper bags for honey. Remember, first, that these bags are intended to hold *candied* honey, not liquid, and the honey should not be poured into them till it is in a mushy or semi-liquid slate. The top of the bag can not be folded down over the honey till it becomes hard; and unless you have an unusually clean place for filling, it is not best to have the bags standing open any longer than is absolutely necessary. If there are any defects in the seams or coating of the bags, the clear liquid honey will find them, and you may be troubled with leaking when you would have no such trouble if you fill only when the honey is in the right condition to harden quickly. Stirring the honey when it shows signs of beginning to granulate will hasten granulation, and make it more even. The bags should be handled carefully to avoid breaking the wax coating when they are cold. Open them up for filling, only after you have warmed them so as to soften the wax coating. In handling or shipping the bags, be careful to avoid chafing and rubbing on the exposed edges or corners. If there is any liability to leak it will most likely be at such points. These packages are so much cheaper than tin or glass for extracted honey that you can afford to go to a good deal of extra pains in putting the honey into them in the best possible manner. You will find it most convenient to have trays of the right size to hold, say, a dozen of the 2-lb. bags, and a less number of the larger sizes to use in filling, allowing the bags to stand in the trays till the honey hardens. We hope to have full directions with illustrations showing the mode of operation, as soon as Mr. Aikin gets time to prepare the matter.

NOTICE TO QUEEN-BREEDERS AND SUPPLY-DEALERS.

We desire to caution our readers against sending any thing, without pay in advance, to M. H. DeWitt or Fanny B. De Witt, of Sang Run, Md., alias The Preston Store & Produce Co., of Dority, W. Va., and elsewhere. We have known for years that the De Witts could not be trusted with any good assurance of getting returns. When they projected the Preston Store and Produce Co., at Dority, West Virginia, we did not discover their connection with it till six or eight months had passed, and credit to the amount of over $150 was obtained, and they had used the advertising columns of Gleanings for several months. They had gone so far as to furnish us references that gave a good report when application was made to them. Other parties had furnished them goods as well as ourselves. We are prosecuting our claims in the courts of Maryland, but with what success we can not say as yet. Having had a recent complaint from a queen-breeder we deem it wise to publish this caution.

SEVEN-TOP TURNIP FOR HONEY OR TO PLOW UNDER.

The seven-top turnip is perhaps the best one to plow under for fertilizing the soil. It will also give a good crop of honey before it is turned under in the spring. If sown any time in August or the fore part of September, it will get rooted so as to stand any winter. In fact, I never knew it to be thrown out by the frost here in Ohio when it gets a good start. It comes into bloom between apple-blossom and white clover. It may be plowed under for potatoes or any other crop. Price, ounce, 5 cts.; 1 lb., 20 cts.; 10 lbs. or more at 15 cts. If wanted by mail, add 10 cts. per lb. extra.

CONVENTION NOTICES.

The annual meeting of the Northern Illinois Beekeepers' Association will be held in the Court-house, at Rockford, Ills., on Tuesday and Wednesday, Oct. 20 and 21, 1903. A good program is being prepared, and all interested in bees are invited to attend.

Cherry Valley, Ill. B. KENNEDY, Sec.

Special Offer for 30 Days

Will sell tested Italians from my Choice Red-clover stock at 75 cents each; untested at 50 cents each.

Fred Leininger, Ft, Jennings, Ohio.

FENCE! *STRONGEST MADE.* Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

PAGE

YOUR LINE FENCE

should always be PAGE. It's so much stronger.
Page Woven Wire Fence Co., Box S, Adrian, Michigan.

FOR SALE.—Thirty colonies of Italian bees in eight-frame Dovetailed hives at $3 50 a hive in lots of five hives; over five hives, $3 00 each. Address
S. A. MILLER, Box 553, New Decatur, Ala.

FOR SALE.—Clover or buckwheat comb or extracted honey. Write for price. Sample of extracted, 8 cts.
C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Extra fine white clover honey, both comb and extracted. Write for special price.
JOHN A. THORNTON, Rt. 1, Ursa, Ills.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT. Shenandoah, Iowa.

WANTED.—Barnes or Seneca Falls foot-power or scroll saw. F. T. HOOPES, E. Downington, Pa.

WANTED.—Comb and extracted honey. See honey column. GLEASON & LANSING, Buffalo, N. Y.

WANTED.—To sell fine job-printing outfit, nearly new. J. W. STEBBINS, Broad Creek, Va.

WANTED.—An apiary or location in Florida. State full particulars. J. G. NANCE, Gracey, Ky.

WANTED.—To sell ginseng seed at 80 cts. per 100.
L. A. JUNOD. Mulberry Grove, Ill.

WANTED.—To sell bees and Brown Leghorn cockerels. H. M. MOYER, Rt. 2, Bechtelsville, Pa.

WANTED.—To exchange honey-cartons at $4 00 per M., and shipping-cases for the same, for honey.
C. B. HOWARD, Romulus, N. Y.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Old postage stamps, especially foreign. Send list of what you have to offer and price asked with samples. A. L. BOYDEN, Medina, Ohio.

WANTED.—To sell half interest in my apiary, pineapple and orange plantation. Good apiarist will have exclusive charge. D. DALY, La Gloria, Cuba.

WANTED.—To exchange modern firearms for old gold watches and solid gold jewelry of any kind.
W. S. AMMON, Reading, Pa.

WANTED.—To sell 110 colonies of bees at $3.00 each. Also bees to let on shares, and supplies for about 600 colonies in all. H. VOGELER, New Castle, Cal.

WANTED.—To buy quantity lots of choice white-clover comb and extracted honey. Price must be low. B. WALKER, Clyde, Ill.

WANTED.—To sell Foxhound puppies and dogs, Hovey strain, some Cocker Spaniel, finely bred. Write for prices. W. H. GIFFORD,
151 Franklin St., Auburn, N. Y.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Comb honey; state price, kind, and quantity. Reference, Hugh Thorn, Pres. First National Bank of Friendly.
W. A. WILLIAMSON, Box 34, Friendly, W. Va.

WANTED.—To sell all or part of 250 colonies of Italian and Carniolan bees; all in good eight-frame hives; have made good crop of honey this season.
E. J. JOHNSON, 302 So. 10th St., Rocky Ford, Col.

WANTED.—To sell or exchange Bates and Edmonds gasoline-engines, 2½ h.-p., $100; 4 h.-p., $180. motor-cycle frames built to order.
ROBT. B. GEDYE, Columbus, Ohio.

WANTED.—To sell full colonies Italian bees in 8 or 10 frame Dov'd hives, with plenty of honey to winter, $5.00 each; in lots of 25, $4.50 each.
F. A. GRAY, Redwood Falls, Minn.

WANTED.—To exchange fine White Leghorn cockerels, at 75 cts. each, for Golden Italian queens; also a few White Wyandotte cockerels at $1.00 each.
J. FERRIS PATTON, Newtown, Ohio.

WANTED.—To sell 50 Danz. AD64M hives in flat, new, at $1.50 each in lots of five; 25 colonies of Italian bees, including modern hives complete, $3.00 each. L. C. DUNN, Primos, Delaware Co., Pa.

WANTED.—To exchange postage stamps with collectors, especially in West Indies, Europe, British colonies, Mexico, and United States. State what you have to offer and what you want in exchange.
A. L. BOYDEN, Medina, Ohio.

WANTED.—To sell Italian queens. Untested, 60 cts. each; 3 for $1.60; 6 for $3.00. Safe arrival and reasonable satisfaction guaranteed. Reference, the Bank of Nevada. Send your name and address on a postal for my prices on queens for 1904.
CHAS. M. DARROW, Nevada, Mo. R. F. D. No. 3.

WANTED.—To sell my bees, not having time to manage; have decided to let them go at these low prices while they last. Strong colonies in excellent condition; winter stores; ten-frame Langstroth, Simplicity, and Dovetailed hives. Single hive at $4.00; five at $3.50; ten at $3.25; twenty at $3.00. F. O. B. here. Cash with order. Reference, State Bank of Evanston. Address E. E. STARKEY,
1126 Benson Ave., Evanston, Ill.

WANTED.—To sell my "Finca" of several thousand acres of magnificent land; good for bees, cattle, and cane, with a lot of valuable timber, mahogany, cedar, etc.; nice young banana grove, good as shade for bees; good house, etc.; half mile from Cauto, where there is a telegraph and postoffice, and a regular boat comes up the river once a week carrying freight and passengers. Price $6000. A bargain for any one who does not care for sociability.
R. M. McMURDO, Cauto, Prov. de Santiago, Cuba.

PAGE & LYON,
New London, Wisconsin.

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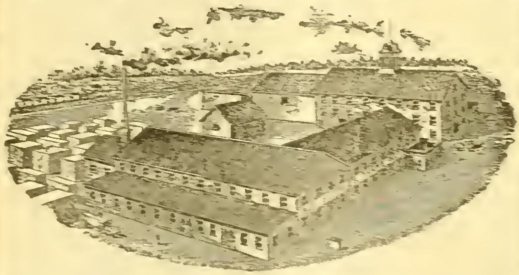

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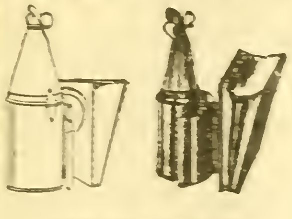

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Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI OCTOBER 1 1903 Number 19

GLEANINGS IN BEE CULTURE

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U.S.A.

Eastern Edition.

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A Neat Package Finds a Ready Buyer.

Pack your honey in the Non-drip Cases made by The A. I. Root Co.; sold in MICHIGAN by

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GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

BUFFALO.—There is no improvement in the demand for honey. Not much arriving, and selling very slowly for what is here. Fancy white comb 13½@14; A No. 1, 13@13½; No. 1, 12½@13; No. 2, 11@12; No. 3, 10@11; buckwheat, 10@12. White extracted, 6½@7; amber, 5½@6; dark, 5@5½; beeswax, 30@32.

W. C. TOWNSEND,
Sept. 23. 178 & 180 Perry St., Buffalo, N. Y.

PHILADELPHIA.—Comb honey is arriving quite freely, and quality is generally a little off on account of the cool weather we had the past season. Very little really fancy honey arriving in this market. We quote A No. 1 at 15@16; amber, 13@14. Extracted, fancy white, 7@8: amber, 6@7; beeswax, 32c, and in good demand. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Sept. 19. 10 Vine St., Philadelphia, Pa.

CINCINNATI.—The extracted honey-market has weakened a little as white clover is offered quite plentifully. Prices of sales I made ruled as follows: amber, in barrels, 5@5½; water-white alfalfa, 6@6½; fancy water-white, 14@15½. No sales for lower grades. Beeswax, 28c.

C. H. W. WEBER,
Sept. 18. 2146-8 Central Ave., Cincinnati, Ohio.

SCHENECTADY.—Receipts of white comb honey quite liberal, and selling freely at 14@15. The crop of dark honey seems to be very short again; but very little on the market yet. We quote 12@13. Extracted, light, 6@7; dark, 5½@6.

CHAS. MCCULLOCH,
Sept. 19. Schenectady, N. Y.

SAN FRANCISCO.—Honey, new comb, white, 12@13; light amber, 11@12. Extracted, water-white, 6@6½; light amber, 5½@6; dark amber, nominal. Beeswax, 30.

ERNEST B. SCHAEFFLE,
Sept. 14. Murphys, Cal.

CHICAGO.—Sales are not frequent enough to keep receipts cleaned up. They are made on a basis of 13@14 cents for comb of the best grades. Extracted, white, 6½@7 cents for clover and basswood, and 6@7 cents for other white honeys; amber, 5½@6½, according to flavor and package. Beeswax, 30 cents.

Sept. 18. R. A. BURNETT & CO.
199 South Water St., Chicago, Ill.

DENVER.—There is a good demand for comb honey in carload lots Home market quiet at following prices: No. 1 comb honey, $2.75@3.00 per case; No. 2 ditto, $2.40@2.50 per case. Extracted honey, 7@7¾ cts. per case. Beeswax wanted at 22@25 cts per pound.

COLORADO HONEY-PRODUCERS' ASSOCIATION,
Sept. 21. 1440 Market St., Denver.

ALBANY.—Honey demand is improving. Receipts are light as yet, and we look for prices to be well sustained. We quote white comb 15@16; light, 15; mixed, 14@15; dark, 13@13½. Extracted, white, 7@7½; amber, 6@6½; dark, 6. Beeswax easier at 30.

MACDOUGAL & CO.,
Sept. 12. 375 Broadway, Albany, N. Y.

BOSTON.—Our honey market continues firm, particularly on white comb honey. Fancy cartons we quote at 17@18; No 1 in glass-front cases, 16; No. 2, at 14. The supply of white comb honey is limited.

BLAKE, SCOTT & LEE,
Sept. 19. Boston, Mass.

NEW YORK.—New crop honey is beginning to arrive more freely, and the demand is good for all grades. We quote fancy white at from 14@15c; No. 1 at 13; amber at from 11@12; no buckwheat on the market as yet. Extracted is plentiful and in fair demand, at from 7c for white, 6@6½ for light amber, 5@5½ for dark. Southern, in barrels, at from 55 to 65c per gallon, according to quality. Beeswax is declining, and nominal at from 28@29.

HILDRETH & SEGELKEN,
Sept. 8. 265-267 Greenwich St., New York.

FOR SALE.—6000 lbs. choice ripe clover honey, new; 60-lb. cans. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7½c.
E. R. PAHL & CO., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fancy comb and extracted honey; extracted in 60-lb. cans. Prices quoted on application.
WILLIAM MORRIS, Las Animas, Col.

FOR SALE.—1000 pounds choice white-clover comb honey. Also 500 lbs. extracted in 60-lb. cans.
H. H. MOE, Woodford, Wis.

FOR SALE.—5000 lbs. of fine comb and extracted honey, mostly all comb. L. WERNER,
Box 387. Edwardsville, Ill.

FOR SALE.—Clover or buckwheat comb or extracted honey. Write for price. Sample of extracted, 8 cts.
C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Extracted honey, amber, 5½ up; light 7 up. Several size packages. Samples, 10 cts.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Extracted honey. Mail sample and lowest price; also fancy and No. 1 comb honey; must be in no-drip shipping-cases. We pay cash.
CHAS. KOEPPEN, Fredericksburg, Va.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & CO., Chicago, Ill.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us. EVANS & TURNER,
Columbus, Ohio.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.
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are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for w catalog and price list and free copy of THE MERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

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The last is a fancy jar, and makes a fine package for exhibition. Discount on quantities of jars; the larger the quantity the lower the price. Catalog describing honey-packages, shipping-cases, cartons, bee-hives, bees, and every thing a bee-keeper uses, mailed upon application.

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Perfect Workmanship and Finest Material.
All parts of our Hives are made to fit Accurately.
No trouble in setting them up.
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
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Stray Straws

By Dr. C. C. Miller.

THAT CELLAR of James Hilbert's, p. 798, seems to be about perfection.

POLLEN from sweet clover is lighter than that from white clover, and more inclined to yellow.

"A NEW QUEEN usually should be given to a colony after the main honey-flow," p. 809. That will be understood by some as advising to remove all queens after the honey-flow and replace with new ones. You don't mean that, do you?

"VENEZUELA as a bee country," p. 799. When I read, "Rightly speaking, there is no government in Venezuela," I didn't need to read any further. I'm not going to Venezuela. Before having lawless human beings as companions, I'd much prefer the quails, ground-squirrels, and jack-rabbits in the wilds of California.

RAIN WATER, says the German, Steigel, is the right thing to use in melting wax. Well water, especially that where yellow clay or red sand abounds in the soil, contains iron, and this browns the wax, no matter how carefully the melting be done. [Yes, there is something in it; but not all well water is bad.—ED.]

FOUL BROOD, we are told, smells like an old glue-pot. But most of us don't know how a glue-pot smells. Couldn't you give us some other comparison? [There is nothing else that smells so nearly like foul brood in its advanced stages as the cabinet-maker's glue-pot when the glue is warm. I could not describe the odor; and therefore suggest that you step into a furniture-store or any cabinetmaker's shop and ask to smell of the proprietor's warm glue.—ED.]

IN FRANCE, according to government figures given in *L'Apiculteur*, for the ten years ending with 1901, the average number of colonies was 1,608,412; honey per colony, 10 pounds 11 ounces; wax per colony, 3 pounds. The small yield of honey and the large proportion of wax (28 pounds of wax to every 100 pounds of honey) suggests that the brimstone-pit is still in fashion.

MR. EDITOR, you say, p. 792, "The depositing of propolis in Marengo is much worse than in Medina," and in that way you account for the greater accumulation between top-bars. No, you'll find very little, if any, propolis between top-bars — wax, pure wax, propolis galore elsewhere, but wax between top-bars. [I knew I saw propolis galore, and very likely it was "elsewhere" than in the places referred to.—ED.]

YOU TELL US, Mr. Editor, p. 796, H. R. Boardman has a way of keeping honey liquid indefinitely, but don't tell us how. If you know, tell. [But we do not know. I suspect that the method of keeping the honey in this liquid condition is a secret with Mr. Boardman. He makes a specialty of bottling honey for the wholesale and retail trade. Why should he give away a secret that is worth to him many dollars, for as a secret it is better than a patent?—ED.]

SYLVIAC reports in *L'Apiculteur* an experiment with a nucleus in which he established the maximum daily ration of a bee in winter at .028 gram. Well it is for us that a bee doesn't do its maximum in ordinary wintering; for at the rate given, a colony of 20,000 in four months would require 148 pounds of honey! [There is something a little off in Sylviac's "science." True science ought to be mingled a little with the practical. A little calculation such as you have made would have soon shown him that something was wrong.—ED.]

THAT SUNDAY at the Grand Canyon that A. I. Root tells about, p. 810, was an unusually long day. When asked to join the exploring party, I said, "I'm no conscience for any one else, but I don't know that it would be right for me to go on Sunday, and I'm not going." The reply was, "Why, after coming these thousands of miles it would be wicked to go back without seeing all these wonderful things." But that wasn't remarkably convincing. I concluded it would be easier to go through the rest of life with a feeling of ignorance as to some of Nature's wonders than with a feeling that I had been doing something I didn't know was right. But I put in the time lively Monday morning seeing what I could.

James Hilbert, after putting his bees in cellar, leaves doors open till too cold to keep them shut longer. That's good practice, as I know from experience. Not only do I do that in early winter, but in spring as well. Some bees fly out to their death, but I believe the inflow of pure air more than compensates. If you want to see how it operates to have doors and windows open in the middle of March, with outside temperature from 29 to 65 degrees, see p. 299, "Forty Years among the Bees." [I was under the impression that friend Hilbert was the only one who practiced leaving the door open clear up into cold winter weather. It seemed to me, as Mr. Hilbert explained it, that it was in conformity with good practical sense.—Ed.]

I'm so glad of your offer, Mr. Editor, to furnish me the kind of metal spacers I want, p. 792. I've been trying this long time to get you to do that. That you may make no mistake, let me tell you again just what I want. A wire nail with a head $\frac{3}{16}$ across, and ¼ inch thick, so that automatically it will drive to the right depth and leave the spacing ¼ inch. How soon may I expect them? "Conditions?" Oh, yes! let's see what were the conditions. That I should put in a half-day with M. H. Mendleson, and then "not agree that metal-spaced frames for extracting are not to be tolerated for even one minute." Well, say; I'm just a bit afraid I can't come up to the conditions. A lot of those California fellows not only object to metal spacers but to any kind of self-spacers, and quite likely they know what they're talking about. [When you have fulfilled the conditions, you can have what you want.—Ed.]

Just while writing these Straws, I received by mail three very interesting pictures taken by W. Z. Hutchinson while in California. One gives the special car that took that lot of bee-keepers from Chicago to Los Angeles with the said bee-keepers standing beside it, colored porter and all. Another is a fine view of the Los Angeles convention, taken from the court-house steps. But the one that thrills me is a view of that wonder of nature, the Grand Canyon. I didn't suppose he could get such a fine picture of it. Makes me wish I could sit there again for a few hours and drink it in. [Yes, indeed, they are a very fine set of pictures, and no one can form any conception of their clearness unless he buys the set from W. Z., at Flint, Mich., who, I believe, has them for sale. This may seem like a free advertisement; but when a man takes pains to study art and carry it out into modern photography, so that it compares with the best photo work in the country, a little commendation of this kind, I am sure, is not misplaced.—Ed.]

Objection has been made to the new smoker lid or nozzle that it gums up so as not to go on easily. Just what I found. With the first day's use the trouble began, and it kept getting worse until in a few days it wouldn't close at all. Then I cleaned off the soot so it would shut; and ever since then if it made the least objection to going shut I pushed it clear down with some emphasis, as if to say, "Shut your mouth and keep it shut," and during all the weeks since then I think I have not cleaned it again. Don't let it get the upper hand of you, but insist that it must go shut and clear shut *every time*. [The hinge to the new smoker-lid on the 1903 model did not have quite the proper crook to make the cap or nozzle stay squarely on top of the fire-barrel. The least little deposit of creosote would aggravate the matter unless it were crowded out of the way in the manner you describe. The 1904 smoker will have the hinge corrected.—Ed.]

At one time I reported that, with Langstroth frames, brood was reared quite close to the top-bars; but I thought this might be only early in the season. This year I gave the matter some attention, and found the same rule to hold until the bees began to store honey in all parts of the comb in September. [This is something that varies according to the season, and, I suspect, somewhat to the locality. The heavier the honey-flow, the more the brood will be crowded up next to the top-bar. Elsewhere you speak of having an extraordinarily good run of honey. We had a very meager flow here. When the nectar comes in very slowly the bees are apt to deposit it near the brood, crowding the queen downward. If it comes in with a rush, they are more inclined to put it all above, if they have room, leaving the queen to have free sway below. I am satisfied that you have a much better locality than we have here around Medina; for I recall several seasons where your honey-flow was continuing on and on, while our bees had been trying to rob for weeks.—Ed.]

You know I told you we'd been having a great flow of honey "in this locality." Now that the season is over, perhaps you'd like to know what some of the best colonies stored. Heretofore the biggest yield I ever had from a single colony was 192 sections; this year it was—come to think of it, Mr. Editor, I don't know that I'd better tell you. You might not believe it, and then it would be hard to get you to believe some other things I'm more anxious to have you believe. [I think I can appreciate how you feel. This last summer our company's attorney, Mr. Spellman, and myself, together with Mr. Hilbert, caught with hook and line, up in Northern Michigan, a great string of fish, so big that A. I. R. held up both hands in astonishment, and immediately wrote home to mother that the string was so heavy he could not lift it. I knew that, when I arrived home, if I told the truth I would be guyed and laughed at for telling a fish-story. Nevertheless I had the temerity to tell my friends what we had done; and notwithstanding I showed them a photo of the string, showing two men holding up the fish, and produced A. I. R.'s letter certifying to our big catch, nobody would believe it. But say, doctor, I wish you would tell us your story — not that we will guy you, for I would not let any one do it. A honey-story could be more readily believed than a fish-story, so you will have the advantage of me in that respect; and, besides, it is not fair for you to raise our curiosity to such a high pitch and then leave us up in the air guessing. —ED.]

Pickings from Our Neighbor's Fields
BY
"Stenog."

BEE-KEEPERS' REVIEW.

Everybody here at the Home of the Honey-bees agrees that the issue for September is the best ever printed. It is good from start to finish — from A clear down to W. Z. It is largely devoted to the Los Angeles convention, of course, as it should be, for Mr. Hutchinson was there. I take the liberty of copying quite a number of extracts from that number, taken at random.

A small but choice collection of flea-bites is one of the things I brought back with me from California.

* * *

I visited Rambler's old apiary, now owned by the Schaffner Bros., and secured a most picturesque view of it which I shall show with much pleasure.

* * *

Black brood may possibly have made its appearance in Michigan. I recently examined two apiaries in the southwestern part of the State, and found them terribly diseased.

* * *

Water is the one great need of the arid regions of the West. Where this can be secured, the fertility is something truly wonderful. Millions upon millions of acres are now practically valueless, simply from this one lack.

* * *

Gee Jim was the name of the Chinese restaurant where several of us took dinner at Williams, Arizona. It was Hobson's choice with us, but the food proved palatable — 'twas the idea of it against which we tenderfeet revolted.

* * *

The adobe, or mud house, of Arizona and New Mexico is the most homesick-looking house that I have ever seen. It is one story high, with poles and some hay or mud on top for a roof. It looks too much like a make-shift stable.

Mexican women, while we were on the route to California, were often seen standing in the doors of mud huts or dugouts, babies in their arms, the latter dressed in nature's garb only—and sometimes the women wore quite a profusion of the latter.

* * *

Mexicans and Indians are about the only track-hands, or section men, seen along the railroad, in New Mexico, Arizona, and California; in fact, it is doubtful if a white man could endure hard labor under the intense heat that prevails on these desert sands.

* * *

J. F. McIntyre, of California, has a floral family. His five daghters are named Flora, Lily, Myrtle, Pansy, and Iris. The only son, 11 days old when I was there, and over which there is much rejoicing, is named Robert Wilkin, after his illustrious grandfather. By the way, the eldest daughter, Flora, extracted 16 tons of honey this season.

* * *

Foul brood may destroy a colony in a bee-tree, leaving honey and combs infected with disease. This fact has been used as an argument to show the impossibility of entirely eliminating foul brood from a district; but Mr. France says the squirrels and the bee moth's larvæ will soon destroy the combs and thus remove this source of contagion.

* * *

The Spanish tongue I first heard spoken in California; and, oh the music of it! — the roll and rhythm, the softness and the accent! It is decidedly the language for the lover. When they had such a delightful language, why, oh why! did they invent the angular English, the energetic German, and the chattering Russian? How I should love to learn to speak Spanish! and I would, too, if I lived where it is spoken.

* * *

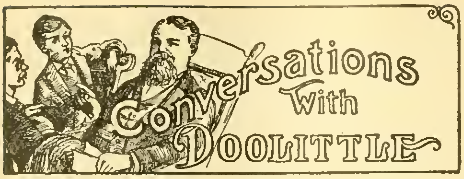
What a difference there is in bee-keepers! Some are slipshod and slovenly, with hives standing in a row close together on a plank—and some of them box hives at that. How discouraging it is for an inspector of apiaries to get into such an apiary as that when looking for foul brood! Then there are bee-keepers of a little higher grade. They have movable-comb hives or hives that are intended to be such, but no foundation starters have been used, and many of the combs might as well be in real box hives. Then there is another grade still higher, but it is not the highest. It is the man who aspires to be a pretty good bee keeper but he has too many other irons in the fire, and he neglects things. The frames are all stuck fast, and stuck together with brace-combs, and it is a task to get out a comb. Then there is the man who is a really first-class bee-keeper. His hives are all made exactly alike. He uses foundation; he keeps the brace-combs scraped from the top-bars; his hives are level; the combs can be removed with the fingers with no prying from any knife or lever. Every thing is orderly in his honey-house He has a place for every thing and every thing is in it. The covers are always put on square and true. Reader, in which class do you belong?

* * *

Concerning some Arizona belles, Mr. Hutchinson has this to say:

Squaws, dressed in gorgeous colors, their faces hideously painted papooses strapped to their backs, offered beadwork and painted pottery at many places where our train stopped while en route to Los Angeles. The hideousness, to me, of some of the old squaws is something that must be seen to be understood. Their straight, black, coarse hair hangs in a tangled mass all around their shoulders, a strip being cut out in front just above the eyes, to allow them to see. Then their faces are so wrinkled, and their eyes are so sunken; and when the mouth opens and shows three or four blackened and broken tusks, the picture, to me, is one bordering upon the horrible. To me, the face of a cow or a horse is much more beautiful and wholesome.

But those papooses come into the world to stay from 100 to 130 years, and generally do it; and their mammas are not broken down with that "tired feeling" at the age of twenty or thirty that makes wrecks of so many white women; and their medical almanacs do not have a very wide distribution. They lack beauty, but their comfort is what the millionaires seldom find out here.



CLIPPING QUEENS' WINGS.

"Say, Doolittle, what about clipping queens? Neighbor Brown says he doesn't believe in it. He says that it is too much bother to hunt up the queen, and that it is too delicate a job to clip her wings when she is found, and that there is more harm than good in doing it anyway. So I come over to see what you would say."

"While there may be a grain of truth in what your neighbor tells you, yet when we come to 'count noses' the greatest weight of evidence from the 'dollar-and-cent' apiarists of the country is in favor of clipping queens' wings."

"What reasons have you to offer for so doing?"

"By having the wings of all queens clipped, you have the bees perfectly under your control, and can handle them as you wish, separating them with pleasure when two or more swarms cluster together, and hive them without climbing trees, etc., on the returning plan, when they come singly, they virtually hiving themselves."

"What is that? Tell me something about the plan."

"In using this plan all you have to do when the swarm issues is to step to the entrance of the hive with a little wire-cloth cage into which the queen is let run, when the cage is stopped and laid in some convenient place. The old hive is now moved to a new stand, and a hive fitted for a new colony set in its place. In from a few minutes to half an hour the bees miss their queen and come back to their supposed old home, where they expect to find her and the hive as it was when they went out. On changing hives the queen is placed near the entrance, so that, as soon as the bees return, they may find her, and not scatter about the apiary to other hives, as they sometimes will if they do not readily find her. As they return they will commence to run into the new hive with fanning wings, when the queen is liberated and goes in with them."

"Well, now, if it will work like that, no wonder that you like it. How long have you used this plan?"

"I have followed this plan for nearly a third of a century, and know it to be a good one, as good yields of honey will testify—no climbing of trees, cutting off limbs, or lugging a cumbersome basket or swarming-box about. It is straightforward. Let me briefly state it again: Remove the old hive to a new stand, put the new hive in its place, and the returning swarms hive themselves with little or no trouble, save the releasing of the queen."

"That is nice, surely; but is that all the reason you have for clipping queens' wings?"

"I have several besides this, one of which is I clip the larger part of the wings off, say two-thirds of all four of the wings, so that I may the more readily see her, now that my eyes are growing dim. In making nuclei, changing frames of brood and bees, extracting, making swarms by shaking, etc., if you find the queen you can always know that she is just where she belongs and not in some place where she ought not to be. And by having her wings cut short you can see her abdomen as soon as your eyes strike the side of the comb she is on."

"That is a good thought also, and one that would help me much, for I have often hunted half an hour or more for a queen, and finally gave up in disgust because I could not find her. Tell me more of these reasons. They explain the situation better than I thought it possible."

"Of course you have heard of the old and main reason for clipping the wings of queens, namely, there is no loss of bees from their going to the woods."

"No. I am only a beginner, and neighbor Brown gave no hint of this."

"That bees do go to the woods, or for parts unknown, all can assure themselves by reading the reports given in our various bee-papers from time to time, if they do not know the same from actual experience. The bees may try for the woods, and they often do; but as soon as they miss their queen, back they come, for they realize that swarming is of no purpose to them unless they have a queen with them to repopulate their home after the bees composing the swarm die of old age. Many a time have I had a swarm start for the woods or some unknown place, and be gone from sight and hearing for some little time; but as soon as they really missed their mother, back they would come, setting up a joyful hum when they found her."

"That is the best of all you have told me, and I am convinced that the clipping side has the best of the argument. But tell me how to find a queen and how to clip her after being found."

"The time of the year in which we undertake this matter has much to do with the pleasure of the work. If we wait till just as swarming time is upon us, and attempt to hunt up a queen in a hive that is overflowing with bees, and especially one that will probably swarm in a day or two; when the queen has ceased her laying pretty much, so that a burden of eggs need not hinder her from flying with the swarm, and thus cause her to become no larger than she was when unfertile, we might well speak of the matter as a 'bother,' as did your neighbor; for to find a queen, under such circumstances, often baffles the most experienced apiarist. But if we do the work in fruit-bloom, when there are comparatively few bees for the brood they are covering, and the queen very large from her prolific egg-laying, using the time from 9 A. M. to 3 P. M. to look for the queen, this being a time still more favorable on account of a large share of the few bees of the colony being out at work, it will be a rare thing that any queen is not found on the first effort, and almost immediately, even by the novice."

"Another new thought to me. But tell me more about how you do it."

"I take along a light empty box of the same dimensions as the hive, and, after smoking the bees as little as possible to keep them from stinging, if they are of the cross kind (many colonies need no smoke at all at this time of the year), I carefully lift the first comb, and as it comes from the hive glance at it to see if there is brood in it, for it is generally useless to look for any queen at this time of the year on combs having no brood in them, if the queen has not been stampeded by careless operations. As soon as I find brood I look closely for the queen, first glancing down the side of the comb next to the one I am lifting from the hive, and next on the opposite side of the one I hold in my hands, holding the comb a little obliquely as I look, for the side of any queen gives a better view than when looking straight on her back. While you are looking for the queen on the frame that is in your hand, should she have been on the side of the comb next to you, and you failed to see her, she would immediately pass around to the dark side of the comb, so it is generally useless to look for her on the side of the comb next to you, after you have it in your hand. As the combs are taken from the hive, set them in the box, so that, should you not find her the first time over, you will have the same chance of seeing her in setting them back into the hive again that you did at first. In this way, after a little practice, you will have little or no trouble in finding any queen, even should it be a black or German queen.

"I think I understand that part now. The next thing is how to clip, and I must be going, as I have already stayed longer than I intended."

"Having found her I take her by the wings with the thumb and fore finger of my left hand, when, with my right, I place the sharp blade of my jack-knife on the part of the wings I hold in my left, lowering both hands to within an inch or so of the tops of the frames, when I draw the blade just a little, thus severing the wings, when the queen runs down into the hive the same as if nothing had happened."

"I thank you very much for your patience in so minutely explaining this to me. But one question more. Is there not danger of cutting the fingers?"

"No, not if you stop drawing the knife as soon as the queen falls, and place it squarely on the wings when starting. Some use scissors, and they are very good; but after using all plans recommended, I like the knife the best, and it has the advantage in that every one carries a knife which is always on hand at any time you may chance to find a laying queen that is not clipped."

Editorial
By E. R. Root.

A REPORT of the National convention will be found in the department of Our Homes in this issue.

THE new California commercial organization is booming. It has a lot of good men back of it, and deserves success.

FORMALDEHYDE FAILING TO CURE.

WE are getting more unfavorable reports regarding the use of formaldehyde for disinfecting foul-broody brood-combs. In one instance a good fumigation did not kill the young brood sealed in the cells; and if this is the case we certainly can not reach the diseased germs in sealed cells. Until we know more about it, it is not best to rely on the treatment any more than to fumigate *empty* combs.

PHOTOGRAPHS FOR HALF-TONES.

A SHORT time ago I said something about the need of having clear, clean-cut photos for half-tone work, and regretted that so many that did come to our office were inferior and had to be discarded. Mr. W. Z. Hutchinson makes the best photos I know of in all beedom. Indeed, I doubt whether any photographer in the United States can do any better work. The Electric City Engraving Co., of Buffalo, one of the largest houses in the United States that does engraving work, wrote Mr. Hutchinson a short time ago, stating that they considered his photos among the best that they received from their various customers, and asking him what he considered the best paper and the best tone for half-tone work. In reply Mr. H. wrote as follows, under date of Sept. 3:

> *Electric City Engraving Co., Buffalo, N. Y.:—*
>
> Upon my return from the National convention at Los Angeles, I find your inquiry of Aug 11, asking about the paper that I used in printing the photos that I send for reproduction. It is Kloro, and in toning I am careful not to carry it too far in the gold bath—thus leaving that rich, reddish-brown color. The glossy surface is secured by squilgeeing the print, while wet, upon the surface of a ferrotype plate, and allowing it to dry there. When dry it will come off itself, and will have the beautiful glossy surface that reflects so perfectly every ray of light that strikes it, thus aiding you in bringing out every last bit of detail.
>
> Flint, Mich., Sept. 3. W. Z. HUTCHINSON.

As others may be making pictures occasionally for GLEANINGS, the hints given will be of value.

THE WAX-PRESS A HONEY-SQUEEZER.

It may not be generally known, but the ordinary wax-press is a most excellent machine for pressing or squeezing honey out of loose broken or irregular chunks of honey. These may be put down into the basket of the machine, without the application of heat, and squeezed, allowing the free honey to pass off. When the honey is all out, steam may then be generated in the lower part of the machine, and the wax melted and squeezed in the regulation way. Chunk honey is very often put into the solar wax-extractor, the honey and wax running off together, the latter coming to the top when cool. But the flavor of the honey is nearly always tainted by such treatment; but by the plan I have already outlined, honey may be taken from the press, and it will be in every respect as good as that taken with the ordinary centrifugal honey-extractor.

CROSS BEES AND LIGHT CLOTHING.

White clothing, says Mr. Hutchinson, saves the wearer some annoyance and stings. I have seen this stated before, but have been somewhat skeptical about it. Black buttons on a light coat, I am aware, will be attacked sometimes by bees because the buttons are suggestive of the eyes of an animal, and instinct seems to tell them these are vital. I imagine that a black hat on a person with white clothing might be the object of an onslaught of stings from bees enraged from any cause. My own notion is, if one were dressed in dark clothing, without any contrast of white or black spots in it, and all the surrounding objects were of about the same tint or darkness, cross bees would pay no more attention to it than they would to white clothing. But I am sure of this: That any thing black or dark-colored, surrounded by a white background, will attract their attention.

OHIO BEE-KEEPERS AND AN OHIO STATE BEE-KEEPERS' ASSOCIATION; A FOUL-BROOD BILL.

The bee-keepers of Ohio should remember that our Ohio legislature will be in session this winter, and it is highly important that we get a foul-brood bill through if possible. There is a movement on foot to resurrect the old Ohio State Bee-keepers' Association, and a meeting will probably be called at an early date at Cincinnati. The times now seem ripe for our Ohio bee-keepers to take hold of the matter, and push it to a successful issue. Two years ago, when our Ohio legislature was in session, the slogan cry was "economy." Governor Nash gave it out that no appropriation bills, unless of the utmost urgency, should be allowed to pass. I interviewed a number of our Senators and Representatives at the time, and was told that it would be quite useless to undertake to get such a bill through as we desired at that session. But the Ohio treasury is now full. The bee-keepers of the State are urged to see their representatives and candidates for election, and get their pledges, if possible, in advance. An ante-election pledge is more easily secured than one after the election. Put in your best licks *now*.

IN MEMORIAM OF G. B. LEWIS.

On the 11th of last June, Mr. G. B. Lewis, founder and president of the G. B. Lewis Co., Watertown, Wis., died at his residence in that place. Strangely enough, notice of his death did not reach us at the time, and it was only when the writer was making a trip through Wisconsin, looking up the basswood situation for sections, that I heard mention of it. We then wrote to Mr. G. C. Lewis, his son, for a photo and some facts concerning the life of his respected father. In response we received the following clipping from a local paper, which gives some idea of Mr. Lewis' worth from the standpoint of his own townspeople.

> George Burnham Lewis, a prominent manufacturer and business man, president of the G. B. Lewis Co., died at his home shortly after 9 o'clock last night. His death was not unexpected, as he had been in a dangerous condition several days. Hardening of the arteries was the primary cause of his death.
>
> Mr. Lewis was born in Moreau, New York, July 5, 1832. He received an education in his native city, and, when a young man of 21, came West, reaching this city in 1853, where he remained during the summer visiting with his brothers who had preceded him here. He returned to New York in the fall, and shortly after was married to Miss Sarah J. Ingalsbe. Mr. Lewis tried farming for awhile; but his thoughts reverted to Wisconsin, and in 1861 he removed to this city and has lived here ever since. In company with his brother, R. E, Lewis, he purchased the water power on the west bank of Rock River, then owned by a man named Salsey. The firm name was then R. E. & G. B. Lewis, and, after sawing up the logs which were purchased with the mill and water power, the firm engaged in the manufacture of sash, doors, and blinds. In 1870 R. E. Lewis retired and G. B. Lewis became sole owner, and conducted the business until 1878, when the firm of Lewis & Parks was formed; and upon the death of Mr. Parks, his son-in-law, the firm became known as the G. B. Lewis Company, one of the largest manufacturers of bee-keepers' supplies in this country. From a small beginning the business of the firm increased rapidly under his guidance and management until it became one of the largest of its kind with a manufactured product which sells all over the world
>
> Mr. Lewis possessed a quiet and amiable disposition, and was a man of integrity. In his business and social life he displayed those characteristics which are so much admired; and those who had occasion to have business or social intercourse with him always had a kind word to say in praise of his many good qualities. Mr. Lewis never aspired to political honors, preferring the quiet of his home. For twenty years he has passed the winter months in Dunedin, Fla., where he has large property interests and it was while there early this spring that he was taken sick. He returned home in April, and has gradually failed in health until released from earthly suffering by the hand of death. By his death Watertown loses one of its oldest and most progressive business men, and an honorable citizen who always took pride in his home city and helped in its upbuilding. He will be sadly missed from the family home circle, and by his many friends and acquaintances here and throughout the State.
>
> His widow and two children, Mrs. L. L. Parks and George C. Lewis, of this city, survive.

It is a real pleasure to us to present a portrait of one who was so prominently connected with the making of bee-hives and sections, for indeed Mr. Lewis had considerable to do in the great bee-keeping world. The high quality of the goods, and the fair and square dealing characteristic of Mr. Lewis and the other members of his company, have built up for them an enviable reputation and a large business.

THE FOUR-PIECE SECTIONS A POSSIBLE SUBSTITUTE FOR ONE-PIECE.

Rererring to the scarcity of lumber for one-piece sections, Mr. Hutchinson says, in the September issue of the *Review:*

> Four-piece sections may yet become a necessity, owing to the scarcity of basswood. Gleanings, in commenting upon this, laments the enormous amount of labor that the handling, or use, of the four-piece involves. The putting-together of the four-piece section does take more time, but it is a kind of work that can be done by cheap help: besides, with proper tools or appliances the difference in time is not so great as might be imagined. There is a tool in which it is only necessary to pick up the four pieces, set them in, and give it a slam, and the section is together. Bro. Root might be surprised to learn how many bee-keepers there are in the country who really prefer the four-piece section. I am one of them.

I am well aware that there are a few who prefer four-piece sections, but the number is very small. Although we sell about 15,000,000 one-piece sections annually, we have not had during the past year, and a heavy one at that, orders for more than 100,000 four-piece, and that is mostly for our Eastern trade. We understand the G. B. Lewis Co. has had but a light trade in them, while the W. T. Falconer Co. has a much larger demand than either of us. The four-piece goods seem to have been used quite largely at one time in New York; but the improvements that have been made in recent years in one-piece sections, and in the manner of making them, have almost driven the four-piece goods out of the market. But for all that, we may have to go back to them, as we may not be able to get enough tough wood to make one-piece boxes to supply the present enormous demand. Between five and ten million feet of basswood is cut every year (this is only a drop in the bucket of the amount used by contractors and furniture-makers), and it would be hard to find any other timber as tough, in sufficient quantities to take care of this enormous output. It may be, therefore, that we shall be compelled in the future, say ten years hence, to use four-piece boxes made of some other wood. Or possibly we may have to get up some scheme whereby chunk or bulk honey can be divested of every suggestion of adulteration, so that the general public in the cities will buy it the same as it would section honey.

LITTLE FERTILIZING-BOXES IN CONNECTION WITH STRONG COLONIES.

In our issue for Aug. 15 I spoke of the fact that the very small nuclei, section-box size, had not worked for us satisfactorily. Indeed, I pronounced them a "complete fizzle." We put out quite a number of them, and followed directions as closely as we could, but not a single queen was fertilized in them. As our readers know, our friend E. L. Pratt, better known as "Swarthmore," wrote me that he had been and was then making the plan work successfully, and that he would like to prove it to my satisfaction if I would make him a visit; but I could not leave at the time. Our friend D. R. Keyes, who wrote about the matter originally, on page 536, June 15, now writes as follows:

> I noticed on page 713 that you speak of my invention as "a most complete fizzle" with you, and I am not surprised, for I found out before you published the article that it would not work with most persons, unless they had more explicit directions than I gave. While it does not do all I had hoped, it does do a great deal; and if you will come my way in April, 1904, I think you might be tickled to see the thing work.
>
> Wewahitchka, Fla., Sept. 23. D. C. Keyes.

It is needless to say that I am open to conviction. If these small nuclei can be made to work satisfactorily in getting queens fertilized, without too much trouble or annoyance, I desire to know how it is done, in order that I may teach others. As every one knows, the most difficult part of queen-rearing is getting the queens fertilized, and I might say the most expensive part by all odds, because our regulation plans involve the use of a lot of colonies, splitting them into thirds and fourths. This necessarily ties up a lot of capital. If we can make a tenth of the number of bees do the work, it is well worth our while to learn the *modus operandi*. Perhaps our friend Keyes could make his directions a little more elaborare, so that, when we try the plan again next summer, it will not be a "fizzle" as before.

STORES NECESSARY FOR INDOOR AND OUTDOOR WINTERING.

We are constantly asked the question, "How many pounds of stores are necessary for wintering?" A good deal depends on the strength of the colony, and very much on whether it is to be wintered outdoors or indoors. The average outdoor colony in this latitude requires anywhere from 20 to 25 lbs.; for indoor, from 15 to 18 lbs. will make a safe allowance. The indoor colony may not consume during its actual confinement more than 4 or 5 lbs., while the outdoor colony during the same period may not require more than 10 lbs. If this is the case, why should not every one winter indoors? Because it is not positively proven yet that the extra amount of stores consumed outdoors does *not* give a more vigorous colony in the spring.

GLUCOSE BETTER THAN HONEY (?).

Mr. W. L. Selser, of Philadelphia, Pa., calls my attention to the fact that one of the large glucose-manufacturing concerns is putting out flaming advertisements of a certain brand of corn syrup as "better than honey for less money." The brazenness of such advertising, Mr. Selser says, beats any thing he ever saw. But better—far better — that they should advertise the goods for what they *are* than to put them out under the name of honest honey. The corn-syrup people pay a fine compliment to our product when they attempt to compare their stuff with the finest sweet in the world.

GENERAL
CORRESPONDENCE.

GOVERNMENT AID TO BEE-KEEPERS.

BY W. K. MORRISON.

I am glad Prof. Benton has replied to my article on the above subject. We hear so little about what the government is doing for bee-keeping that it is a real pleasure to know that it has not lapsed into what Mr. Cleveland would term "innocuous desuetude."

What I said about Dr. Alfred Russell Wallace would seem to be clear enough, even for the proverbial "man in the street." For a traveler mainly in search of birds, and studying natural history generally, Dr. Wallace's account of *Apis dorsata* is excellent; at least, I for one don't expect travelers to write treatises on subjects of this kind, and I will only repeat what I originally said, that his descriptions of the giant bee are very clear and accurate. To expect Dr. Wallace to write a technical account of *Apis dorsata*, how it behaves under domestication, its life history, etc., is rather too much. But the most important point of the whole controversy Prof. Benton leaves unnoticed. It is this: *Apis dorsata has never been domesticated.* It may be possible to domesticate this bee; but why not try to tame it on its own native heath? Why not study it and tame it before bringing it to this side of the world? I do not claim a monopoly of the domestication of *Apis Indica*. If the reader will examine the sentence referred to it will be seen that I made my meaning clear to every one, except, perhaps, to Prof. Benton. I am and have been well aware that *Apis Indica* was kept in a domestic state by the natives of India, and so have many others, most of whom never saw the "Manual of Apiculture." But Prof. Benton does not seem to be aware that *Apis Indica* is a failure thus far in a Langstroth hive. Experiments are being made with it, and we may hear of better results later on.

Relative to the bees of Africa, what I said is true if some of the best African explorers can be trusted to tell the truth. Prof. Benton states that the bees of South America are of only one genus, the *Mellipona*. As a matter of fact, the bees of South America belong to *three* genera and of many species. Probably South America contains as many species of honey-bees as all the rest of the world put together. South American bees have been kept for ages in a domestic state; and as for the assertion they won't stand cold, there is nothing to support it. Stingless bees can be found near Caracas, at an elevation of 8000 feet; and in all probability they can be found elsewhere at 15,000 feet above sea-level. If the fact that *A. dorsata* lives at 4000 or 5000 feet above sea-level proves hardiness, what shall we say about 8000 for the stingless fellows? I will go further, and send the editor of GLEANINGS South American bees that, at the distance of a few feet, can not be told from the black *Apis mellifica*. And I can also send specimens that look much like Doolittle's best Italians, except they are thicker. So far from dismissing the bees of South America with contempt, the more I have studied the subject the more I am convinced that a careful study of them would repay its cost a thousandfold. We know but precious little about South America, particularly its natural history. I know the folks up north are in the habit of expressing themselves as if South America were a well-known continent, when just the opposite is the case. We know next to nothing about its internal resources. Venezuela, which is the nearest South American country to the United States, is almost unknown; and what has appeared about it lately in the newspapers is mostly fiction. Alexander von Humboldt was the last traveler who "did" Venezuela, and he landed in Cumana in 1799. The country has changed very little since then except for the worse. Hence when the bee-keepers of the world see the appearance of a book about the bees of South America they may expect something of engrossing interest; and the man who writes it deserves well of the bee-keepers of the world.

I believe that government aid ought to be granted to enable us to study the bees of the far East; but whether we should ask the government *now* is another matter altogether. It is not always advisable to ask for a thing, though it may seem to be a good thing in itself. Some very interesting bee problems can be worked out without leaving the grounds on which the buildings of the Department of Agriculture stand. And it goes without saying, that Congressmen like to see what they vote money for; and if they approve of it, more funds will be forthcoming. One of the reasons why Congressmen refuse to vote money is they fear it will be squandered on unprofitable work, or be simply used to furnish an office for some importunate office-seeker. Such things have happened. Personally I believe Congress will readily allow money for apiculture if there is a certainty the money will be profitably spent. Prof. Benton is correct when he states that apiarian societies ought to take this matter up and discuss it. It is the bee-keepers who should decide this question, and they need not wait for the general government to move in the matter. California can well afford to help the bee-keepers of that great State. Texas has made an excellent beginning. Other States should fall into line. New York, for example, can well afford something handsome. But the bee-keepers will gain by taking my hint that it is well to have a program ready, and, after the money is actually voted, keep a watchful eye on the progress of the experiment; for unless bee-keepers keep up their interest in the matter it is bound to fail from causes that I need not mention here.

TIERING UP FOR COMB HONEY.

When the Empty Super Should be Put Under or Over the One Partly Filled.

BY W. B. GEHRELS.

In regard to the question whether to slip the second super between the first and brood-chamber, or to put it on top, as Mr. Hershiser recommends, I will give this as my experience:

I have always put the empty super right over the brood, and raised the partly finished one to the top. But Mr. Hershiser's article on comb honey came just before our horsemint honey-flow began, and I gave his plan a thorough trial.

Either way will give satisfaction, but under different conditions. If your bees are blacks or hybrids, which are the best for producing section honey in this climate, and if the honey-flow is heavy, the nights warm, and your colony very strong, put the empty super on top, and let them finish and seal the sections right over the brood. When we have these conditions the bees work so well in the upper or empty supers that they sometimes begin to seal the middle rows of sections when we take off the first super. In this way the first one is finished sooner ready to take off, so a lot of bees that would cover the honey if it was left on can be doing something else.

As to the number of supers to leave on or put on at one time, I always judge by the strength of the colony, source of honey, etc. If I have on three supers filled with bees building comb rapidly, and still bees idle, with indications that the honey-flow will hold out a month, then I would give them a fourth super. But generally two at a time is all that an average colony can take care of to advantage.

If your bees are Italians, and the honey-flow likely to be a long one, and when the honey is very thin, requiring more time to ripen before the bees can seal it, or if the nights are cool, under these conditions I think it would be an advantage to put the empty super right over the brood, and the nearly finished on top. I do not like bait combs in supers. The bees will finish these sections, and stain them before the sections that had only foundation are finished. If I have a lot that are not sealed complete when I case and scrape the sections, I put these unfinished ones back in supers and put them on strong colonies to seal.

San Antonio, Texas, July 20, 1903.

[I believe you are correct in your statement of the conditions when the one or the other plan may be pursued.—Ed.]

HOW AN EGG IS FORMED IN THE QUEEN.

The Survival of the Fittest.

BY E. F. PHILLIPS.

Probably many of the readers of Gleanings have wondered how it is possible for eggs to be formed in a queen so fast, and through what process an egg goes in its formation. I can not explain to you the mystery of the rapid development of the egg, but I may be able, with the aid of a few drawings, to give you some idea of the way in which eggs are made.

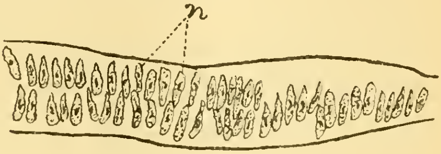


Fig 1

The ovary of the queen is composed of a large number of what are called ovarian tubes, in which the eggs are made, and, since the formation is the same in all, we will examine but one of the tubes.

The entire body of the bee is made up of small divisions of a living substance called *cells*, or of the secretions of these cells. Each cell contains a more active bit of the living substance which has to do with the feeding of the part around it, and we call this the *nucleus*. Now, the words "cell" and "nucleus" are used in a far different sense than they are used in bee-keeping; but since they are in general use in the sense which they are used here, it will only be necessary for the readers of Gleanings who are used to the other meanings to bear in mind the difference in this case. I might also say, in beginning, that the things which will be described here can not be seen in the ordinary dissection of a queen; but in the cases which I have examined, the ovaries were cut into sections

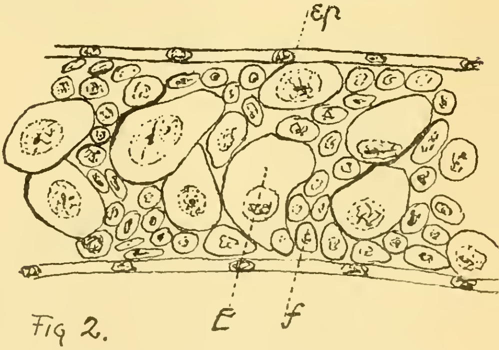


Fig 2.

$\frac{1}{2500}$ of an inch thick, pasted to glass slides, and then treated with various chemicals to stain the different parts. Of course, a strong microscope is needed to make out the details.

At the end of the ovarian tube, next to the thorax, the condition is represented by Fig. 1, the small irregular bodies being the nuclei (*n*) of cells. As far as can be seen, these nuclei are all of the same importance. The boundaries of the cells are not distinct here.

The next step is represented by Fig. 2. Some of the nuclei have been pushed to the edge, and now form a layer of cells all around the mass in the middle. On a section this tube is represented by a double line, marked *ep*. Of the remaining nuclei, some have become larger, and are now enclosed in a distinct cell membrane. These are marked E, and are destined to become eggs while those marked *f* are the feeding or nurse cells, which aid in the nourishing of the future egg. The cells which in Fig. 1 are all alike have now taken on special duties, and are correspondingly modified.

In Fig. 3 is represented the condition that is found not far from the posterior end of the ovarian tube. But one end of the egg is represented, because a full illustration would be too large; but the diameter at this time is about that of the ripe egg, and you can readily estimate the length. Part of the feeding-cells (*f*) have also become very large, and are marked *f1*, while others surround the entire egg in a thin layer (*f2*). The nuclei of *f1* are very large and irregular, and the nucleus of the egg is marked in the drawing as *En*. The substance of feeding cells, *f1* and *f2*, goes into the egg, and furnishes the material on which the growing egg lives until it hatches into the larva and is fed by the workers.

All of these drawings are made on the same scale, so that it is easily seen how much the eggs increase in size from the stage represented in Fig. 1 to that in Fig. 3. After the feeding of the egg is completed it passes down the tube where the chorion is formed, and then the egg is ready for laying.

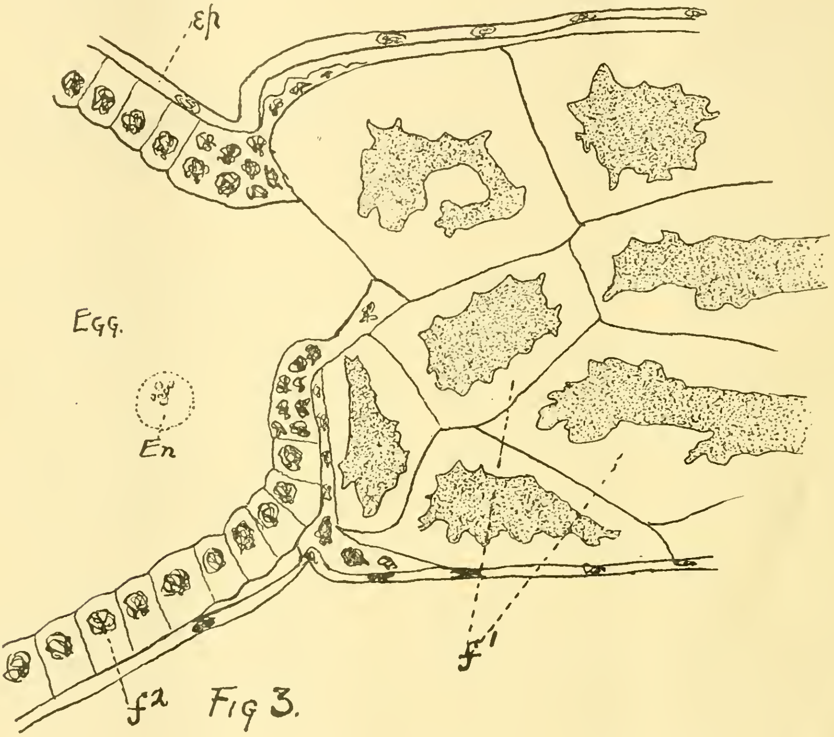


Fig 3.

In the formation of the egg we see illustrated a principle which exists throughout all nature—the survival of the fittest. The cells in Fig. 1 seem to be all alike; but certain cells are stronger, and therefore take in more food from the blood, thus increasing in size and becoming eggs. Others are weaker, and are pushed to the edge by the rapidly growing cells, and ultimately form only the cover-cells. The feeding-cells are strong also, and increase in size, but they too are compelled to give up their substance to the still stronger egg-cells, and are later killed. This seems to be an effort on the part of nature to sort out for the reproduction of the animal only the very best cells in the ovary.

FEEDING BACK EXTRACTED HONEY.

Explicit Directions on How to Get Well-filled Combs; "Shook" Swarms a Failure; Drone Comb from Worker Foundation; a Valuable Article.

BY M. W. SHEPARD.

The question of feeding back extracted honey for the production of comb honey does not appear to settle any more than several other questions of more or less importance to the bee-keeping fraternity do. Opinions and theories differ in regard to the matter, and many of the shining lights of beedom say it can't be done. After an experience covering several seasons, and having my efforts crowned with success, it may not be out of place for me to say it *can* be done, and done easily, and at a good profit, and especially feeding back to finish unfinished sections. We usually have several thousand such sections at the end of our main honey-flow, and in this climate it is well nigh impossible to keep combs of any kind off the hives on account of worms; so it is policy as well as profit that led us to try the feeding-back plan.

We first assort our unfinished sections, get our supers ready, and then begin by filling our supers, putting the fullest ones in the corners and outside rows; but be sure to uncap all sealed cells. If *you* don't, the bees won't, but will build new comb on top of the sealed cells, making what we call double-deck combs. After you fill your supers, put not less than two on any good strong colony whose brood-chamber is well filled with sealed brood and honey. For feeders we use a box made out of thin lumber, and which will hold one gallon or a little more. Set this box *on top* of the supers; fill it with thick honey; throw a handful of coarse excelsior on top of the honey; then cover the whole up bee-tight.

You will find that the bees will store about all of the first feederful below, not making much of a show in the sections; but be sure to keep honey in the feeders day and night until the sections are nearly as full as they should be; then taper off rapidly with the feed, and the bees will seal the combs, and you will find them as smooth and perfect as if built under normal conditions. Take these supers off and replace with empty ones, and you will get them filled; but I advise you not to use the same colony for more than two lots; for on the third lot they seem to think they have done enough, and will not take the honey.

Now, this is all about finishing unfinished sections; but the same plan holds good if you use sections filled with foundation instead of partly finished sections. I do not claim the foregoing plan is a universal one that will work anywhere and under all conditions, whether the conditions are known or not; but I say it works with us on a large scale, and we are satisfied.

Now, does it pay to feed, for the purpose of filling out unfinished sections? Yes, it pays *us* to do so. Will it pay to feed back for the purpose of producing comb honey from full sheets of foundation in the sections? Yes, if extracted honey is not worth more than 5 cts. per lb., and comb honey is worth not less than 12 cts. We wish to say, first, know what you are going to try to do, then go ahead. If you don't want a puttering job, don't try feeding back, and *don't* try to be a lightning operator at the job, or possibly the lightning may strike you.

Shook swarms seem to be a fad. We tried 20. We shook five on narrow starters. Results, they deserted the hives, went into others, and raised a pretty "ruction" by so doing. We put the other 15 on foundation and on drawn combs. Results, no good on foundation, and not much better on combs. Conclusions arrived at: It doesn't pay to shake swarms with our conditions to contend with; so we will be willing to let it work where it *will*, and not try it any more until we know more about it.

W. K. Morrison has an idea that success in raising comb honey consists in not having drone comb in the brood-nest. The question comes up to mind, and we ask, "How are you going to help having drone comb in the brood-nest?" Now, please don't say, "Use full sheets of foundation in the brood-nest." We know just what we are talking about when we say that we can show fine-looking combs, hundreds of them, made on full sheets of worker foundation purchased from the Root Co., and called "medium brood," and yet I defy a person to find a worker-cell. Now, then, what are we to do? Throw those combs away? Can't afford to do so. Well, then, use them in extracting-supers; and we arise to ask how long it would be before they would be down in the brood-nest. If a person had only 75 or 100 colonies (or less) it might be done; but when you count your colonies by the hundreds or thousands, and have half a dozen men working, it doesn't pay to talk about such things.

Is the old question of spacing coming to the front again? Well, if it does we will say that, for the production of comb honey, space ¼ inch, just as J. E. Pond advocated years ago. If you work for extracted honey, space ⅜ inch in the brood-nest, and ½ inch in the supers.

Hollister, Fla., Aug. 24.

[You make one point regarding feeding back; and that is, *uncapping all sealed cells*. If this has ever been emphasized before, I do not remember it.

I understand you to say that you have some frames of all drone comb made off from worker foundation. I have been well aware that there will be occasionally here and there a drone-cell, but I do not remember to have seen an instance before where bees made all drone comb from worker foundation. Let us hear from others. You have given us some good pointers.—Ed.]

Heads of Grain from different fields

A TYPICAL CALIFORNIA APIARY AT TROPICO.

This location is six miles north of the center of Los Angeles, being, we think, an ideal place for wintering bees and making our home, but not a favorable place for honey production. We usually move most of our bees to other locations during a honey-flow. Our seasons for honey production are variable, the highest yield we have had being an average of 200 lbs. per colony extracted honey. Producing honey in California since 1890, we have at our home apiary an increase this season of 100 colonies. We have sold during the 13 years several hundred colonies of bees. At present we use Langstroth hives only.

W. J. McCarroll.

Tropico, Cal., Aug. 22.

[This beautiful picture of a California apiary was shown to me while we were in Los Angeles, and I requested the writer of the above to forward us the photo and description, which he has kindly done.

Perhaps I might explain that the foot of the mountain, shown in the back part of the picture, covered with brush, is such as used to be seen along all unreclaimed ground. The crop on the ground between the mountain and the hives is alfalfa. The trees in the corner at the left are probably orange-groves. The hives in the apiary are disposed in hexagonal form. Each one is the center of six standing all around it, and they are far enough apart so one can walk around each hive. The extracting-room is a cloth-made tent; but when robbers get to be bad he will have to patch up that hole in the roof. An iron pipe leads from the extracting-room into the galvanized-iron storage-tank. I presume there were not any robbers around when the picture was taken, or mosquito-netting would have been seen over this tank in the attemot to keep out bees. There are between 200 and 300 hives shown in the picture; but I judge from the letter that some of them are moved to other localities at some seasons of the year.—A. I. R.]

IS IT A NEW DISEASE?

I am sending you a specimen of a diseased honey-comb which is troubling us bee-keepers of this county in half a dozen apiaries, to my knowledge. It has appeared in 50 to 250 hives. In my opinion the disease is neither foul brood, black brood, nor pickled brood. A great many of the bees have no wings. You can see they are not capped over, but slightly raised above the comb. It is worse in some hives than in others. I have lost 80 colonies. The bees did not swarm except a few; and what did swarm with me went into other hives.

If you want any more information I will gladly give the same. The disease is in the mountains more than in the valleys. The honey crop up in this county will be poor on account of disease; also weather has been cold up to the present time. We had frost in the mountain districts up to the 20th of May.

Pat Keating.

New Almaden, Cal., May 29.

[This was sent to Prof. Frank Benton, of Washington, D. C., with the suggestion that it might be a case of poisoning. He replies as follows:]

Mr. Root:—Enclosed is the report of the Chemist regarding the bees sent by Mr. Keating, of New Almaden, Cal. I can think of no other suggestions to make, since, in the event of willful poisoning, I suppose very many poisons might be employed for the purpose; but accidental poisoning by spraying would probably be only with arsenic or copper.

Washington, D. C. Frank Benton.

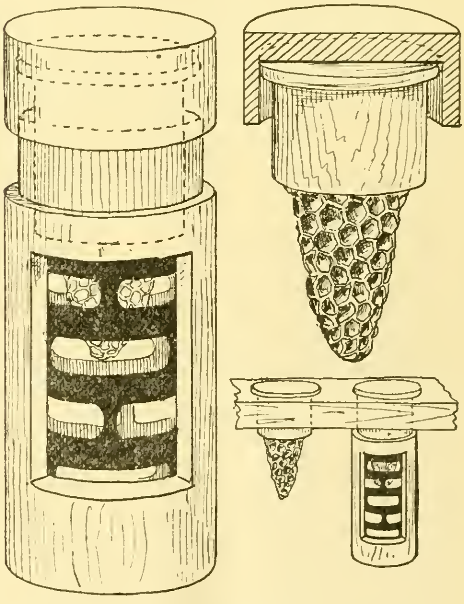
[The report referred to is as follows:]

Mr. Frank Benton, Washington, D. C.:—We have examined the sample of bees forwarded by you in behalf of Mr. P. Keating, for arsenic and copper, but find that neither of these substances is present. If you can suggest any other poison that may be used to kill bees, we shall be glad to make a test for it.

H. W. Wiley, *Chief.*

A WOODEN PILL-BOX QUEEN-CELL PROTECTOR.

I send you a little contrivance that I have been using with much success this season. The largest stopper I use by putting a dipped cell in. The small one is a regular Swarthmore compressed cell-cup. I prepare them by simply transferring larvæ without royal jelly, then insert 11 or 12 in a false top-bar when ripe; then put on the



pill-box protector. How do you like the idea?
H. FITZ HART.

Honeysuckle, Ala., July 16.

[Your pill-box queen-cell-protector scheme is all right; but it will be a little more expensive, and, to my notion, not quite so handy as a Stanley cage that is designed to accomplish the same object. We use almost the same thing except that we use perforated metal formed into a cylinder, a wooden plug to which the queen-cell is attached being inserted in the top, and a plug containing food inserted in the bottom. See description in last issue, p. 797. —ED.]

PUTTING HIVES ON STAKES TO KEEP ANTS AWAY.

Having tried every medicine I knew of to drive ants away from the safe and around the house, and meeting with dismal failure, I did not undertake to try to drive them away from the bee-hives, for any thing obnoxious enough to drive away the ants would be as liable to have a similar effect on the bees. I have been using for three months, with success, stakes *fastened* on the bottom-board similar to the stakes mentioned by R. C. Hollins, on page 592, with this difference: Stakes are made 7½ inches long, and made of 2×4 scantling; and instead of being sharpened and driven into the ground they are sawn flat, fastened on the ends of the 2×4, on the bottom-board, and the ends inserted into old (or new) quart fruit or tomato cans; and each morning the cans are filled with fresh water. The ground around the hives is sometimes alive with ants, but they never get into the hive. I have seen only one ant on the hive since I have used the cans, and that was caused by neglecting to fill the cans for two or three days. The only trouble to speak of is filling the cans, and that is not much when you take into consideration the good derived from it, as the bees will water at the cans, and will not have to go far for water. I have never seen a bee at my watering-trough, which stands about 20 steps from the hives. They all water from the stakes. This is probably an old remedy for ants; but I have never seen it nor heard of it before, and I think if tried it will not be cast aside. The ants were very annoying before I used it.

In regard to the hive being too high from the ground in the case of a queen with clipped wing. I overcome that by making an alighting-board to slope from the ground to the hive, giving the board the proper bevel next to the hive, and driving two small staples in the bottom-board, and two small nails into the beveled edge of the alighting-board; bend them like a hook, and hook them into the staples; then drive another small staple into the end next to the ground. Fasten one end of a string into the staple driven into the hive, suspending the alighting-board just high enough from the ground

CALIFORNIA APIARY BELONGING TO W. J. M'CARROLL.—SEE OPPOSITE PAGE.

so small insects can't crawl up; but the bees, with a little exertion, can.

H. A. Higgins.

[The scheme of putting hives on stilts or posts, in cans of water, is very often used by bee-keepers in the South to keep ants and other insects away from the bees. The only possible objection to it is the fact that a clipped queen can not very well get into the hive; and I do not quite see how you overcome the difficulty, for I believe the average ant can reach up as high as the average queen. But after all, the difficulty with a clipped queen is small when you remember the swarming season extends over a very limited period; and if any one is present he can find the queen under or near the hive, cage her, and recover the swarm. But if the hive were resting on the ground, the queen might run back into the hive, making it necessary to hunt for her, not only on the ground but in the hive. If the plan of shaking swarms is successful, this difficulty of clipped queens may be almost entirely overcome.—Ed.]

THE BANNER APIARY.

I send you a picture of a part of my apiary. I have 132 colonies in this yard. Not many of them show in the picture. My bees have done well this summer. I had a large swarm come out to-day. They will have to look to me for their winter food.

J. W. Culvey.

Rolling Prairie, Ind., Aug. 25.

A QUEEN-CELL ABOVE PERFORATED METAL.

While extracting yesterday I found a perfectly developed queen-cell on a comb taken from a super with queen-excluding zinc between the same and the hive. There was no sign of other brood or eggs. Did the queen go up through the zink, and lay one egg in the queen-cell prepared for it, and lay no other eggs, or did the bees move the egg from the lower story? I have handled a good many extracting-supers, but never found a queen-cell before, without other brood.

F. W. Humphrey.

Oronoque, Ct., July 24.

[It is generally believed that eggs in queen-cells are put there by the bees rather than that the queen lays them there herself. I have seen bees myself transporting eggs, carrying them in some way under their chins; but whether they were going to put them in some other cell or in a queen-cell I can not say. Therefore it would not be impossible for a bee to carry an egg through the perforated zinc and put it in a queen-cell above. They are quite inclined under some conditions to build cells above perforated metal or any portion of the hive from which the queen is excluded; if, therefore, a cell were started, it would not be at all strange to find an egg in it, even if there was a queen below that could not pass the metal.—Ed.]

THE HOME OF THE HONEY BEE
50

APIARY OF J. W. CULVEY, ROLLING PRAIRIE, IND.

MOSQUITO HAWKS; BEES BALLING THEIR OWN QUEEN.

I wish to ask a couple of questions. Have you ever known mosquito hawks to bother bees? I have lost over 50 queens this season while they were mating. For a long time I could not tell what was taking them. At last I found out. Then I set to work to kill the pests. I killed several hundred of them.

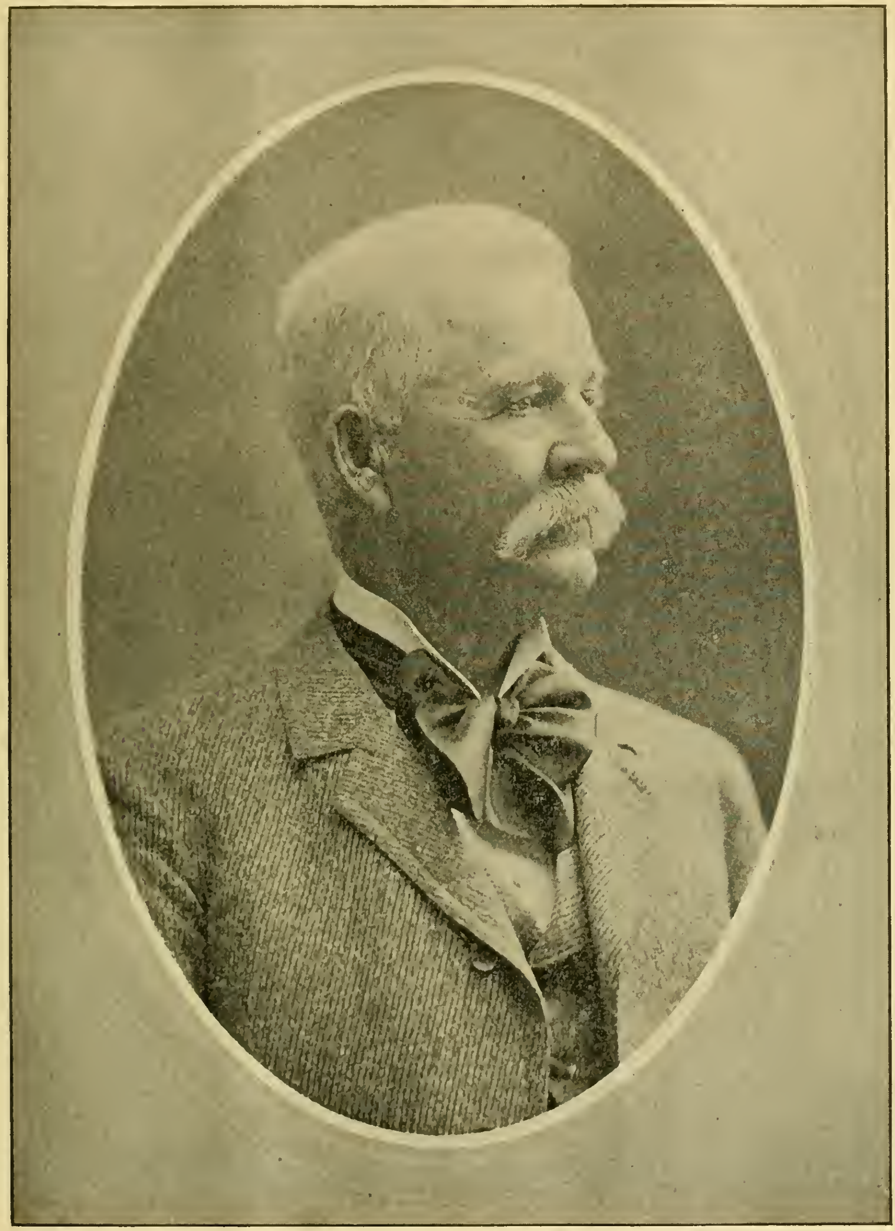
I also had a nucleus a few days ago turn on its own queen and ball her. What was the cause?

H. F. Stafford.

Tallahassee, Fla., July 25.

[Mosquito hawks are a well-known enemy to bees in some parts of the South; but I never knew a case before where they appeared to be as destructive as in the case above mentioned. Perhaps some of our correspondents in the South can tell what friend S. had better do.

It is not an unusual circumstance for bees to ball their own queen, especially just after the hive has been opened. *Why* they attack her it is impossible to state. All we know is that a sudden fury or frenzy of some sort after the disturbance seizes the bees, when they will make for the queen, killing her. If the hive is closed up, and left alone, the queen will sometimes be found afterward all right, doing full service; at other times she will be killed.—ED.]



G. B. LEWIS, THE VETERAN BEE-SUPPLY MANUFACTURER, WHOSE DEATH OCCURRED JUNE 11TH, 1903.—SEE EDITORIAL.

FORMIC ACID IN HONEY.

I have read somewhere that formic acid is injected into the honey by the bees, and that it is the same acid that causes the pain when stung by the bees. In GLEANINGS, page 638, I read that it is assumed that formic exists in honey. If so, what is the name of the poison that causes the pain when stung?

How long should the same combs remain in the brood-chamber, as every generation of bees leaves the cells smaller?

Calabasas, Cal. JOHN BOWEN.

[I am not sure whether scientific authority has positively stated that there is formic acid in *honey*, although it has been surmised or assumed that it was there present because the acid is a preservative. The poison of the *bee-sting* has been definitely shown to be formic acid; but whether the bees inject it from the end of the sting into the honey is doubtful; indeed, many think it too ridiculous to be entertained even for one moment —ED.]

SAINFOIN CLOVER FOR BEES AT THE OTTAWA EXPERIMENT STATION, CANADA.

Have any of your correspondents had any experience with sainfoin clover? If so, I think it would be helpful to many if they would relate it. In this part of Canada sainfoin does exceedingly well, yielding from two to three tons per acre of excellent fodder, similar to that of alfalfa. We have already cut it twice this season, and expect a third crop. This plant blooms from three weeks to a month each time, and the bees cluster on it more than on Bokhara clover. Sainfoin is well thought of by farmers, as it makes good fodder, and is a grand nitrogen-gathering plant to be plowed under as a fertilizer. JOHN FIXTER.

Ottawa, Canada, Aug. 12.

[Sainfoin is a well-known honey-plant, and has been referred to at various times in these columns; but for some reason it has not received much prominence—just why, I can not say. I shall be very glad to hear from any of our subscribers who have had any experience with it.—ED.]

THE HONEY CROP IN CENTRAL CALIFORNIA.

The honey crop is light in weight and dark in color up to date. But this valley (San Joaquin) may get a good crop. An old copy of GLEANINGS shows that most of Rambler's last crop at Reedley was made well along in September and October; so it is all fol-de-rol about any one knowing about our honey crop yet.

W. A. H. GILSTRAP.

Modesto, Cal., Aug. 17.

THE GRAND CANYON OF ARIZONA, ON THE SANTA FE.—SEE NOTES OF TRAVEL.
—Courtesy of Santa Fe Railway.

MIXED SWARMS; THE PLAN OF LETTING THE SEVERAL CLUSTERS SEPARATE THEMSELVES.

I see on page 682 an article on mixed swarms. I ran on to your correspondent's idea years ago, and that by chance. I hived a swarm, and in a few moments after setting them on their stands, here came a stray swarm pouring down over the top of a cherry-tree, and right in with the new swarm. I picked up a new hive that was near, snatched off the cover and cloth of the other hive, and set the empty one on top and covered it up. In the evening (after dark) I lifted the top hive off and set it on its own stand. I soon found I had two good strong colonies of bees. A short time after this, I had two swarms cluster together. I prepared my hives, took my swarming-box, and took the whole cluster down, shook them on the platform in front of the hive, and soon I had them all in. The bees were all kind and quiet, as though there were but one swarm. When I lifted the top hive off, it was full of bees, as was the lower; and I again had two good strong colonies of bees. This I have done several times since I have handled bees, and it has always been a success with me. I have often wondered if each colony knew its queen, or if they divided by weight or measure.

J. W. C. GRAY.

Atwood, Ill., Aug. 4.

MOVING BEES WITH ENTRANCES AND TOPS COVERED WITH WIRE CLOTH.

Please answer through GLEANINGS the following: I desire to move forty-five colonies of bees two hundred and sixty miles by wagon, which would take about ten days. Can I do it safely if the entrances and tops of hives are covered with wire cloth? I shall move them in October when the brood will be about all gone.

Rocky Ford, Colo. L. A. DEWITT.

[Your plan will work satisfactorily providing the season is not too hot during the middle of the day. In the case of very strong colonies you would need to provide some kind of shade, and possibly give ventilation over the whole bottom of the hive; but from what I know of your climate, I think you will be able to succeed; but I would take along a large canvas or cloth, which may be spread over the top of the hives during the heat of the day. But the cloth should be held at least four or five inches above the wire cloth, and be so arranged as to allow a free circulation of air.—ED.]

A SUBSTITUTE FOR BASSWOOD FOR SECTIONS.

When basswood gives out (see page 713), why not trim up the white-birch trees while young, and let them grow up to timber? They grow very fast until they are about ten or twelve inches in diameter. If you could get 1000 sections from a tree, would it not pay to raise them for this purpose alone? There is a foreign white birch that grows much larger than ours. Or the yellow-bark birch could be used if you do not care for white sections. I merely suggest this, as I do not know any thing about making sections nor what wood would be the best for the purpose. J. L. HYDE.

Pomfret Landing, Ct., Aug. 31.

[We should be glad to get samples of this white birch to which you refer; but my impression is that we have tried it and found that the wood lacks toughness. A one-piece section must have a material that will bend at the V-cut without breaking, and it would be hard to find any thing from one end of this great country to the other that would have the toughness of basswood under all conditions. The section business takes up millions of feet of timber every year, and would therefore require a very large supply of the birch or any other substitute to take its place.—ED.]

TRAPPING OUT SKUNKS FROM A BEE-YARD.

I have noticed what has been said recently regarding skunks and their annoyance in the apiary. They have troubled me this summer, but I have succeeded in dispatching them with such ease that I think my experience may be of some benefit to others.

When I find indications of skunks in the apiary I set common steel traps where they work, and in a night or two I catch a visitor. Knowing that, like the occupants of the hive, he will use his weapon of defense only when in danger, I approach him very cautiously, taking with me a nail-keg and a long-handled steel garden-rake previously supplied. When near enough I hook the rake into the trap, and lift skunk and trap clear off the ground, swinging them around to the keg. When in the right position I carefully drop them into the keg, slipping a cover over it at once. In a few minutes the keg and skunk can be safely taken to a place convenient to water, and the keg filled, when it will be but a matter of moments with the skunk. The principal things to observe are to keep the skunk, after being disturbed, where he can not get a foothold, and to keep cool yourself.

Troy, Pa. C. N. GREENE.

[Your plan of putting the skunk into a keg is all right *if* you know *just how* to do it; but a novice at the business might come to grief. If one knows the habits of the beast, well and good; but if he doesn't —! ! ! Why wouldn't it be better all round to use a revolver, a small rifle, or even a shotgun, standing off at a "respectable" distance and dispatching the animal while it is a captive? But make a sure kill, first crack. To wound mortally is not enough, for then the animal would throw out its awful scent before dying.—ED.]

LOAFING BEES AND THE REMEDY.

Mr. Root:—Will you tell what causes loafing around the entrance, and clustering? Also tell where this has been discussed. I can not find it in your indexes. I have a very strong colony that was a large May swarm. It filled the brood-frames, and just started work in a super in June, and yet it has been doing nothing but exist, since July. Other colonies near this one, though not so strong, have done well. Would shaking the bees out and making a new artificial swarm on partly drawn-out combs cause them to work?

Joseph G. Baier.

New Brunswick, N. J., Aug. 25.

[Loafing around the entrance is caused by a lack of shade or the entrance being too small, or both. The remedy is obvious. It is our rule to give the bees shade during the heat of the day, at least while they are gathering honey, and to provide as wide an entrance as the hive will admit. Last summer I succeeded in causing the bees to go to work in several of our hives by simply raising the hives off the bottom-boards, making the entrance not only wider, but leaving an air-gap at the sides as well as at the front. So far I have never failed in making the bees go inside of hives providing I gave them enough ventilation at the bottom. You will find this subject indexed under Entrances; under Bees Loafing; under Clustering, and Clustering Out. The subject has been discussed in nearly every volume, and especially during the height of the honey-flow.—Ed.]

DISEASE VS. KILLING DRONES.

I inclose a sample of dead brood that is being dragged out of one of my hives. They commenced on the 27th, and still continue. They have put out 200 or 300 in all stages. It is a swarm hived May 27, 1903, and it is working the second super. It is one of my best and most prosperous hives, and the bees are as yellow as pure Italians. The 27th was quite cool, and it has been cool and rainy since, following some very warm days previous to that date. If you will kindly solve the mystery for me, and say what will probably be the outcome, it will be a satisfaction to me.

S. A. Peck.

Northumberland, Pa., Aug. 29.

[The brood that you sent has been examined, but I do not see any thing to indicate black or foul brood, nor any of the contagious diseases known to afflict bees. The fact that it is all drone brood indicates that the season has closed, and that the bees had killed not only the living drones but had destroyed all drone brood, lugging out the imperfect baby drones in the cells. Indeed, that is exactly what they will do at the close of the season.—Ed.]

PAINTING HIVE-COVERS THAT ARE COVERED WITH PROPOLIS.

I wish to repaint a lot of hives and covers, and my past experience teaches me that, wherever a cover has propolis, or bee-glue, on it, no matter how clean you scrape it the paint refuses to dry or stick. Can you suggest some way by which I can succeed?

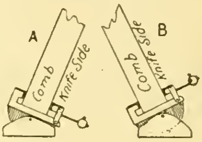
J. A. Minnick.

Anderson, Ind., Sept. 9.

[If the hive-covers are smeared with wax or propolis there is not much need of painting. Either one is a good preservative against the weather. I do not know of any white paint that you can make stick on such a surface; but if you desire to substitute paint for propolis, immerse the covers in boiling water. When dry, put on the paint.—Ed.]

THE HOCHSTEIN UNCAPPING-DEVICE; SOME CORRECTIONS.

I see that, in your article on my uncapping-device, July 15, you have given the credit of the invention to my father, C. F. Hochstein. I also see that in the engraving the comb is held with the top slanted toward the knife, or as shown in the figure at the left. This is a very inconvenient and unnatural position. I always put them the other way, or as shown in the figure at the right; for although, when thus held, the cappings do not drop so easily, it is a much better way in all other respects. Try it and see.



Lewis B. Hochstein.

Paradero de Punta Brava, Cuba.

[The general practice, I think, is to let the comb slant *toward* the knife so that the cappings will *fall away from* the comb rather than *on* to them, as in the method that you prefer. I tried both ways in California, and prefer the one where the cappings, as soon as sliced off, fall from the comb direct on to the mass below. As this may be a matter of personal preference I should be glad to hear from some of those who have done a large amount of uncapping.—Ed.]

AMMONIA FOR BEE-STINGS.

On page 588 there is considerable said about bee-stings. Now let me give you an antidote for the poison of a bee-sting; and if applied as soon as the pinching remedy, you will know nothing more of it; but if left till very much swollen, it would not entirely stop its effects. If swelling has commenced, apply as far as or further than the swelling reaches. The remedy is *aqua ammonia.* Try it and be convinced.

William Whitney.

Carson, Iowa, Aug. 7.

[Aqua ammonia is an old remedy for bee-stings, and you will find it mentioned in many of the text-books. But are you sure you can apply the alkali quickly enough so it will reach the acid of the poison through a puncture that is far more minute than the finest cambric needle would make? Lay the two under the lens of a good microscope magnifying anywhere from 300 to 1000 diameters, and you will find that the needle is a sawlog in comparison with the sting. Now, bear in mind that the sting is tubular, and has back of it powerful pumps for forcing the poison into the wound. When you remove the sting, how are you going to force the antidote into the wound, where the opening closes instantly, or in a few seconds of time, and which, before the bottle can be reached, will be as tight and impervious as any other portion of the skin? If the aqua ammonia could strike through the skin anywhere, clear into the flesh, which I believe it does not do, then undoubtedly it would neutralize the poison. In that case there would never be any swelling, and the pain would cease the instant the alkali was applied.—Ed.]

INSURING BEES IN MUTUAL COMPANIES.

On page 688 you and your correspondent ask for information about insuring bees. In Wisconsin the local or town mutual fire-insurance companies do insure bees on the same terms and rates as other farm property. I have kept my bees, bee-hives, bee-keeping implements, and supplies insured for the past twenty years. Honey also may be insured if desired. I see no good reason why they may not be insured in all States where the local mutuals do business insuring farm property. Of course, the bees in cities would not be insured by these companies. The joint-stock companies can insure them if they wish; but as they are not insuring much farm property in this State they can not afford to go among the farmers to insure bees. F. Wilcox.

Mauston, Wis., Aug. 8.

CAGING TO PREVENT SWARMING.

What are the disadvantages of caging a queen to prevent swarming? 1. As practiced by Elwood and Hetherington, does it ever result in producing laying workers (practically)? 2. Is it necessary to put workers into the cage also? 3. Will the bees of the colony feed her? 4. Is there ever any loss from reintroducing? 5. About how long is it safe to keep her thus caged from the bees? I have searched the latest edition of the A B C, but can not find any reference to this subject. J. H. Burns.

St. Mary's, Ont., Can., Sept. 2.

[The chief disadvantage seems to be in hunting for queen-cells every eight or nine days, making it necessary to scan every inch of comb throughout the entire yard. Again, in my experience a colony with a caged queen does not seem to have quite the energy of one that has a queen with full liberty of the combs. But despite this there are a good many prominent bee-keepers who have been practicing the plan with considerable satisfaction and success.

Whether or not the practice will produce a laying worker will depend largely on the strain of bees used. But I should not expect very much trouble from that source. With Eastern races, particularly the Holy Land, fertile workers would develop with almost no provocation whatever. If Italians or hybrids be used, there will be but very little trouble from that source.

You may or may not put workers in the cage.

Yes, the bees will feed their queen; but I would always advise having Good candy where she can get at it. The losses by introducing are comparatively small. We have kept queens caged, in one case some two months, and in the mean time the bees had managed to rear a queen of their own; but still they were taking care of the one that was caged.

You will find this subject mentioned under the head of Swarming, *subhead* Swarming Controlled, in our A B C book.—Ed.]

HERSHISER'S FILLED-SECTION PLAN.

I should be glad if you would send me the two back numbers containing Mr. Hershiser's articles on the subject of comb-honey production. I find his teaching is far better than to place an empty section-case between the brood-nest and the two-thirds filled super above. I have tried six supers filled with 24 and 28 sections, according to Mr. Hershiser's directions, and every one was filled full. J. L. Nance.

Drywood, Kan., Aug. 17.

LAW RELATING TO BEE-TREES.

I have found several bee-trees, and should like to know the law regarding the finding and cutting of bee-trees in Michigan.

G. Frank Pease.

Eckford, Mich., Aug. 10.

[Under the common law, bees found in a tree become the property of the one who discovers them; but the said person has no right to cut the tree without the consent of the owner thereof, nor any right to take them out of the tree without cutting, without such consent. There is no State law that I know of that would bear on this question.—Ed.]

SYRUP-FEEDING.

1. Is there any objection to giving the fairly strong as well as the weak colonies half a pint of syrup every night to promote brood-rearing from the middle of August until the middle of September, and then feeding more heavily to fill the combs with stores?

2. Is there any objection, other than expense, to feeding the bees all the syrup they will store away in the brood-combs up to about Oct. 1?

3. Providing brood appears in all the frames of brood, should any frames containing brood be removed to contract the hive in the fall? A. Y. Doud.

Bristol, N. H., Aug. 27.

1. No objection, only it would be a lot of work; and unless you wished to stimulate brood-rearing and strengthen the weak colonies it would hardly pay you.

2. No objection except the expense and time. Never think of giving a colony more stores than it can possibly consume before the next honey-flow. Twenty-five pounds of sealed stores for outdoor wintering, and fifteen or eighteen for indoor, is ample. If you feed the bees until you jam every comb with honey you will leave no winter-nest for the bees to cluster in, and that would be a positive detriment. Bees, to winter well outdoors, should have a sphere, or space, spanning three or four combs in the center of the brood-nest, that has no honey in. When extreme cold comes on, the bees will cluster down in the cells, and wedge up into a very small compass. If there is a whole inch of comb honey between the divided clusters, you will probably find every one of the divided clusters dead before spring.

3. Let the bees have all the brood they will rear—the more the better. But I would not encourage brood-rearing after settled cold weather, as the bees, in their attempt to cover the brood, will become chilled, and the number of newly hatched bees would not begin to make up for the loss of other bees that are scattered over the brood, trying to protect it.—Ed.]

UNFINISHED SECTIONS; BAIT SECTIONS.

Having read the discussion both ways, I wish to ask if there would not be as many unfinished sections if the second super is placed above the full one as if placed below.

If at the commencement of the honey-flow you should give the bees two empty supers, which would you bait, if not enough baits for both, the yard-man being absent for a month? R. A. Hardy.

[No, there would be many more unfinished sections if the empty super were put under the one partly filled. The very purpose and object of putting an empty super on top is to avoid having so many unfinished sections. Bait the lower super.—Ed.]

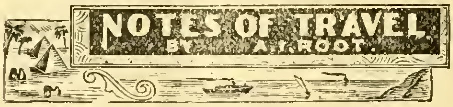
STILL ANOTHER BEE-BRUSH.

I think the best bee-brush yet is a common whitewash brush. It is soft, does not injure the bees, and is easy to clean.

Arthur Heinkel.

Mauston, Wis., Sept. 3.

[A whitewash brush would make an excellent one; but I do not think it would sweep the bees off the comb quite as satisfactorily as an ordinary Coggshall brush or a brush made of broomcorn, the strands of which have been properly thinned out. To use such a brush, it should be laid *flat* against the combs and given a *side* sweep. Do not attempt to use such a brush as you would sweep dirt off the floor. Of course, a whitewash brush would have to be handled that way. And right here a little trouble arises in angering the bees. The *ends* of the strands seem to remind the bees of so much bear fur. They sometimes struggle to get up into it in the attempt to sting. But the strands of ordinary broomcorn, when applied sidewise, knock the bees off their feet, without the suggestion of bear fur.—Ed.]



NOTES OF TRAVEL
BY A. I. ROOT.

A GLIMPSE OF THE GRAND CANYON, ON THE SANTA FE ROAD.—SEE PAGE 846.

Please imagine, dear reader, that the elevation on the further right-hand side of the picture is 13 miles from the tableland away across at the left hand. Then imagine that the crevices between these great rocky cones go down in many places a straight mile. Some faint idea of the enormous distances may be formed when you realize that the shrubbery at the lower right-hand corner is composed of pretty fair-sized trees. The crevices between these rocky pyramids are canyons that might make almost a day's walk. These stratified rocks are colored with almost all the tints of the rainbow. If you will look closely you will see the strata of rocks, one layer on top of another, and the color changes with each layer. Some of them are as white as chalk; others are red like red chalk. Again, there are white and clouded layers like marble. Many of the minerals glisten in the rays of the sun like broken glass or flinty rocks; and as you go down the canyon you are constantly met with optical illusions such as I have described elsewhere. You feel as if you were fenced in and can't go any further. But a crevice soon opens out; and where you did not suppose it was possible there was room for any thing, there are acres of rough ground.

One unfortunate feature that stands in the way of making new explorations is, there are almost no springs where good drinking-water may be found. In many places in the desert we found cavities in the rocks that held water from the rains; but if there are any such around the Grand Canyon I did not hear of them. In fact, it is dangerous in many ways for people to go out alone in exploring this vast gorge. The week before our visit, two young men lost their lives in trying to swim across a comparatively quiet place in the river when at the bottom of this great canyon. They wanted to go over to make some explorations on the other side, and they felt sure they could do it safely.

I am sorry the above picture does not give any glimpse of the trail which we followed in going down to the river. But friend Hutchinson succeeded in getting a most excellent picture showing a part of the trail and the tents down at the foot of the trail. He will doubtless give the picture in the *Review*.

OUR HOMES,

BY A. I. ROOT.

Let every thing be done decently and in order.—I. COR. 14:40.

Not only were the bee-keepers in that car to California a lot of law-abiding and orderly people, but the 200 or more members of our Association who met in convention at Los Angeles, it seemed to me, were a remarkably fine, intelligent, and bright set of people—people who evidently feared God, loved righteousness, and hated iniquity. It really does one good to be in company with such a lot of go-ahead and enterprising people.

The convention started out with great interest, and much promise of being one of the best ever held. President Hutchinson, with the assistance of Secretary York, kept every thing going according to the language of our text. California gave us a royal welcome, and the responses from the different parts of our nation were bright, and for the most part to the point.

I shall not attempt to give much of a report of the convention, from the fact that Bro. York employed a stenographer, and will give the proceedings in full in due time through the *American Bee Journal.* I hope every reader of GLEANINGS will take the *American Bee Journal* at least long enough to get this report, if he is not already a permanent subscriber.

In taking up the part assigned me, "Reminiscences of Forty Years," I touched on the introduction of bee culture in California; and it was a happy surprise to see J. S. Harbison one of the foremost in the audience—that is, he sat near the speaker, very likely because, like myself, he is a little hard of hearing in his old age. As I finished I made a request that Bro. Harbison tell us something about the introduction of bees into California. If I am correct, this is almost the first time, if not the *very* first, that Mr. Harbison has attended a bee-keepers' convention; and I am quite sure it is the first time he has given a full history of his remarkable venture. At first he seemed inclined to make only a few brief remarks; but in response to my repeated questioning he gave a very full and clear account of it. When he was quite a young man residing in Pennsylvania he got a notion in his head, so his neighbors said, that bees would pay well in California. He wrote there to find out about it, and was told there was nothing there for bees to live on; that if he brought them he would have to plant crops to grow honey before he could make them succeed. He could not give it up, however, and in due time he had two carloads of bees fixed to the best of his knowledge and skill for their long trip. Right and left he received nothing but criticisms and sneers. Just one man, if I remember, gave him a little encouragement by telling him to be of good cheer, for he believed that a great future was before him. He succeeded so well that only about a dozen colonies perished on the way, and then came his great triumph. It was during the gold excitement and high prices that his bees were landed; and they went off so fast at $100 a colony that many were disappointed, and commenced bidding to the first purchasers. In this way a few colonies were sold at over $200 each. In a little time Mr. Harbison shipped samples of his mountain-sage honey in 2-lb. sections to the principal cities of the United States. It was a novelty; and, it being war time, when things were high, his whole crop was sold at 25 cts. per lb. wholesale.

Side by side with Bro. Harbison, on the front seat, was J. G Corey, of cold-blast-smoker fame. Bro. Corey got the bee fever; but he lived away off over the mountains, and the only way to get bees over there was to carry them on foot. He succeeded in purchasing a weak colony. As he was already something of a bee-keeper he made a light hive to contain this nucleus, and strapped it across his shoulders. This hive he carried successfully more than 100 miles over the mountains. Part of the trip he had to make on snowshoes; but he got them through alive, built them up, divided, and sold his increase for something like $40 or $50 a colony. Some of our older readers know how California astonished the world, not only with the *quality* of this water-white sage honey that would not candy in the coldest weather, but by the *quantity.* California, however, has had to learn, like Florida and many other promising points, that bee culture is uncertain. There has been a series of years in the past decade when the crops have not only been poor, but the quality of a large part of the product has been inferior. The old veterans, however, who have stuck right to the business, holding fast to their chosen occupation, have generally come out pretty well.

Our good friend L. E. Mercer has, during the past season, taken 100,000 lbs. of honey, some of it, at least, and has now something over 1000 colonies. Of course, he had less than that number to start with in the spring. Friend Mercer has, from a part of the produce of his hives, just purchased a beautiful new automobile, and it was my pleasure to ride with him all over the beautiful city of Los Angeles in his auto. Our good friends Brodbeck, McIntyre, Mendleson, and several others, have likewise had very fair crops; but in many places the crop has been more or less a failure.

Of course, Prof. Cook was with us; and I am sure it was a rare treat to all present to hear the matter of co-operation discussed in the happy vein that only Prof. Cook can command in presenting any subject. He said that in their neighborhood they had a "co-operative cow." They divided the milk; and when she broke into the gardens of any of the four there was not any hard feeling, because she was a *partnership* cow. In the West, daily papers are quite expensive compared with what they are here in the East, and these four families had a co-operative paper. After enlarging along the same line he introduced to us a bright young man who had, by Prof. Cook's special request, consented to give us an account of how the California Co-operative Fruit Association had succeeded in disposing of all their fruit at fair prices.

Now, dear friends, I feel it a duty to speak of something that is not very pleasant. Mr. E. T. Abbott has always been a very good friend of mine, and perhaps he is still, and I hope he will be after I have finished what I am about to say. God knows I would not willingly hurt the feelings of any bee-keeper, nor would I say any thing that might in any way make matters worse instead of better. May the Holy Spirit direct me in what I shall say. If I remember correctly, Mr. Abbott came in while Prof. Cook was speaking. He did not hear Prof. C.'s pleasant introductory remarks. He heard the talk of our invited guest in regard to selling fruit. Without considering that he had not heard all of the subject, and might not know all the circumstances, he in no very mild terms denounced the whole idea of co-operation. He said it was just the trust business and nothing else. Now, we all know friend Abbott has some truth on his side—yes, a great deal; but there is a happy medium between co-operation and trusts that is all right. Mr. Abbott was too vehement. It was not only uncourteous to Prof. Cook, who was one of the speakers on the program, but it was very unkind to the outsider who had been invited by special request to tell us what had been accomplished by co-operation in selling fruit. I felt afraid at the time that friend Abbott was in a bad mood. Later on, in the committee room, I am told he was very overbearing and ungentlemanly. Mr. Abbott has many rare and good qualities. He is an eloquent speaker, and, as a rule, a clear thinker. His particular forte, however, seems to be fighting existing evils; and I fear that sometimes he magnifies these evils in his zeal. There are times and places where such a man is needed. I do not think he was exactly needed when he came among us at the close of our convention—that is, he was not needed in that way. I suppose you have all heard the story of the tame bear that was watching his master while he slept. A big fly had the audacity to disturb the sleeping master; and the bear in his zeal raised his ponderous paw, and not only killed the fly, but—*his master too!* We should all be careful how we use the paws (and *claws*) God has given us. As friend Hutchinson has fairly gone over the matter in the *Review* for September, I think perhaps it will be as well to copy right here what he says:

> The Rev. E. T. Abbott went to the Los Angeles convention with a set of amendments to the constitution that he, apparently, wished kept very much private. When invited before the committee on amendments he not only refused to allow said committee to pass upon his proposed amendments, but so forgot his good manners as to reflect upon the character of the committee and the President of the Association.
>
> After the committee on amendments had reported, Mr. Abbott turned over to the Secretary his amendments, and started in to accompany them by a few remarks, beginning something as follows:
>
> "Last year I presented a set of amendments, but through the pusillanimous action—"
>
> At this point the chairman checked him, informing him that no abuse could be allowed. He made several attempts to continue his harangue, using language more picturesque than polite, but met such a storm of hisses, stamping, and jeers as to be unable to be heard, until the chairman finally insisted that he confine himself to respectful language, under pain of being expelled from the room.
>
> At this point some one remarked that, as Mr. Abbott had turned his amendments over to the Association, they were now the property of the Association, and the Association could do with them as it saw fit, and he moved that they be referred to the committee on amendments. The motion was promptly supported, when, as the chairman was putting it to vote, Mr. Abbott strode up to the desk, took the amendments out of the hands of the Secretary, tore them into bits, scattered them upon the floor, and started for the door, saying, "Good by, good by, good by;" but he finally halted near the door and did not go.
>
> At this point some one arose and said: "When those amendments were passed over to the Association, they became the property of the Association; and to remove them forcibly—well, we have a name for such an act—and I move the appointment of a committee to decide what action we shall take."
>
> A committee was appointed; and while there was a strong sentiment in favor of expelling Mr. Abbott from the Association, more moderate counsels prevailed, and the committee simply reported in favor of adjournment.
>
> I regret exceedingly being obliged to publish this account of Mr. Abbott's behavior; but, judging from the past, he may again be an aspirant for office, and I deem it a duty to so inform my readers that they may be able to vote intelligently.

When the above matter came up before the Association I began asking myself how *I* would act if I were in the chair; and I felt keenly for Bro. Harris, who occupied the place while President Hutchinson was temporarily absent. Bro. Harris was remarkably cool for one in such circumstances. He asked repeatedly if the convention sustained his rulings. So far as I know it stood by him to a man. Let me digress a little right here.

When I have a quarrel with a neighbor, or with anybody for that matter, it disturbs me. I keep asking myself the question, "Is it not possible that *I* am wrong, or largely so?" But when I have *two* quarrels on hand, I feel still more disturbed. When there are *three* I usually feel so troubled that I am almost forced to decide that I am more or less out of the straight and narrow path. Now, friend Abbott had not only a controversy (to put it mildly) with several persons, but with a whole convention, numbering something over 200, who had gone up to the secretary's desk and paid their dollar. These were all against him. The president again and again said there was a lot of business they would have to get through with. He said we should have to drop the discussion and go on with the regular order of the day. But Mr. Abbott absolutely *would not* let him or the 200 and more bee-keepers go on with the proceedings.

If I have stated the matter unfairly concerning Mr. Abbott, I should be glad to be corrected. But I hope he will recognize that the pages of GLEANINGS, like the time of the convention, can not be used to explain *personal* grievances.

In conclusion I wish to say this: If there is nothing in our constitution whereby one man can be prevented from blocking the way, and standing out against the wishes of a large roomful of bee-keepers, we want to put something into that constitution that *will* do the work, and do it quickly. Bee-keepers come long distances at big expense for the purpose of learning things they do not already know about bee culture. This convention is called for that purpose, and it is preposterous to think of allowing the precious hours, we might almost say minutes, to be occupied at such a time, and with such a crowd, in discussing matters that bee-keepers neither know nor care any thing about. Whenever any speaker gets off the track, or whenever he is occupying more time than we can allow him, he ought to be called to order by the chairman, without fear or favor. I for one should be glad to be made an example of. Whenever the chairman thinks I am talking too long, or even if he does *not* think so, I wish he would call me down that I may be able to set an example before the rest, by good-naturedly breaking off or stopping anywhere. We are working for the public good, and not to set out our own personal matters.

Years ago, when I invited bee-keepers to attend conventions, many of them would give as an excuse that they would be glad to go if the time could be occupied in discussing bee culture; but they did not want to go and hear quarrels and jangles and discussions in regard to "parliamentary rules," etc.

It did me good to look once more into the face of Prof. Cook and to hear the tones of his voice, for it brought back the memory of old times. And then I remembered how persistently he has all his life plead for decency and order. Then I looked at Bro. York in the same way. I remembered what a quiet, peaceful man he had always been, and how plainly it seemed written on his face that he loved peace rather than warfare. Now, do not misunderstand me. Bro. York has some claws (turned in out of sight); and once or twice, when claws and nothing else would hit the spot, he has shown himself ready to use them. Then I might mention W. Z. Hutchinson, Dr. Miller, and a host of others I have known and *loved* so many years.

Remember the sabbath day to keep it holy.—Ex. 20:8.

SELLING HONEY ON SUNDAY

Mr. A. I. Root:—As I have been reading GLEANINGS and your Home talks in the same paper, I have acquired much confidence in you as a *Christian* friend, and so ask you concerning my spiritual experience of late. Partly through weakness and partly through neglect of duty I sold a few pounds of honey to a customer on Sunday some time ago, but decided later not to do so again. To day I had another call for honey, and refused. I don't know how it is with you; but with me this is hard to do—not so much for fear of losing trade as of making enemies of those men. Could I have more influence with these in making Christians of them by doing so or not?

DeLand, Ill., Aug. 30. F. N. MORGAN.

Friend M., I am exceedingly obliged to you for having brought this matter up; for I feel quite certain that others who wish to remember the Sabbath to keep it holy have passed through similar experiences. I fear it will be very hard, however, to lay down any general rules in regard to the matter. If honey is wanted for sickness, or even if the one who calls for it makes that a plea, I would let him have it. But perhaps I should prefer, under the circumstances, to give it away rather than receive money for it on God's holy day. Then, again, it must depend a great deal on circumstances. While in Cuba, a little colored boy came with a bottle and a dime over to our apiary, and wanted some honey. Mr. Wardell, the manager, told him he could not have any; but as the boy spoke only Spanish, and Mr. W. only English, I hardly think he knew why we refused to give him a dime's worth when we had honey by the carload. So far as Sunday was concerned, very likely the boy did not know it was Sunday, or did not know Sunday from any other day. I think I would have taken the dime and given him the honey; but I would have gone to work at once to try to tell not only that boy, but all in that region, something about the day God has set apart.

Now, I fear that some of the good friends may think I am not very good authority in this matter; but to others who have confidence in my judgment and in my interpretations of Christ's teachings, I will go a little further. Here in a Christian land, where we all speak the same language, if a neighbor has come quite a distance to get some honey on Sunday I would let him have it for fear I should hurt the cause of Christ more by losing his friendship and good will than I would by trading on Sunday. Let him take take the honey along and pay you for it if convenient on some week day. I do not like to handle money on Sunday if it can be avoided. If, however, it is going to be difficult for him to pay it some other time I think I would take the money then; but I would have a pleasant talk with him in regard to the matter, explaining why you do not like to buy or sell on Sunday.

One of the former pastors of our church ordered a chicken sent to him on Saturday night. The meat-man was so rushed with business on Saturday evening that he could not deliver the fowl till Sunday morning. I think the meat-man brought it himself. The pastor declined receiving it, telling him he could not encourage buying and selling on Sunday; that he ordered the chicken Saturday, and it was to be delivered that same night. They missed having chicken for dinner, and the butcher had to carry his prepared chicken back to his shop. But that was not the whole of it. It had been the custom, it seems, for the meat-man to deliver his goods on Sunday morning, and it started an unpleasantness between him and the minister that probably prevented the man of God from having any influence for good over that man while he stayed in our town; and our pastor confessed afterward that he had probably erred in judgment; that it would have been better to take the chicken under the circumstances, keeping friendly relations with the meat-man, and suggesting to him at the same time that he preferred not to receive any meat on Sunday. Don't you think the latter course would have been better? And is it not a worse thing in God's sight to lose your influence over a neighbor than to do something Sunday morning in the way of business?*

One more little incident comes to mind now in regard to that Cuban apiary. I was at the time having a rather bad spell with my digestion, and was living mostly on toast and milk. Sunday we had no milk. I was compelled to get along the best I could. The manager of our apiary said by way of explanation that he had shut down on *all* buying and selling on Sunday. Not even could "milk and honey" be dispensed to the sick or well. When I remarked that, when the boy came around, I would buy a little milk on my own responsibility, he replied, "The boy will not come around with milk this morning. I told him yesterday he need not bring it any more on Sunday."

Now, friends, even if we do *not* all think alike in regard to this matter concerning the Sunday milk-man, can we not express our views and live up to our convictions, and do it in a friendly and tolerant way? I still think it is a worse thing in God's sight to quarrel over such things than to go a little too far in buying and selling on Sunday. Of course, we should all, as Christians, make arrangements beforehand so as to have just as little Sunday traffic as possible. When we get right down to it, is not this the true spirit of the beautiful text, "Remember the Sabbath day to keep it holy"? I would advise friend Morgan and every one else who is puzzled to know just what is right in the matter to read the complete record of the works and sayings of our Savior, and note carefully what his attitude was in regard to keeping the Sabbath.

HEALTH NOTES

BY A. I. ROOT

WHAT SHALL WE EAT? ALSO MORE ABOUT THE AGUA CALIENTE HOT SPRINGS.

Ever since that article in our July 1st issue, where I quoted from Terry, and made comments in regard to eating what you please without having it hurt you, etc., my conscience has troubled me. It is true I drank a bowlful of hot lemonade, and experienced no bad effects from it. I also ate strawberries freely three times a day for a week; but very soon after I wrote that, I found I had (as many times before) got to "let up" on using so much fruit. When I am doing severe mechanical work in the open air I can stand a good deal more of such diet; but sooner or later nature revolts, and I have to get back to a diet of beefsteak and dry bread. The truth of the matter seems to be in my case, and I think very likely in that of many others, after having been careful to eat such things as agree with me, and not in excess, for several days, say until my digestion gets in good working order, then I can stand quite a little fruit, without injury. Why, this is so *commonly* recognized, there is a peculiar trouble with digestion, often called "summer complaint;" and this summer complaint is just indulging in too much fruit, or perhaps we may say fruit and vegetables when they first get to be plentiful and cheap. My impression is that friend Terry has found out by this time that the directions in his $5.00 circular do not very well answer to *tie to.* Imagination *is* a great factor, no doubt, in the matter of eating and drinking; but it is not *all* of it by any means. When nature has been overtasked to about such an extent, she generally makes a revolt.

A few days ago a friend of mine said, "Mr. Root, you have been almost all your life experimenting on diet. For years you were a vegetarian, if I am correct. Later on in life you took up the lean-meat diet with such vim that you ate nothing but beefsteak for many weeks—perhaps I might say months. You have doubtless tried all of these breakfast foods, or a good many of them. I know you are honestly trying to find a beaten path where we can all follow you in the matter of diet. Are you ready to tell us what the result of your experimenting is? If a man wants to arrange his eating so as to keep well, what would you advise him to eat?"

I replied, "Well, my friend, it is a hard matter to answer you briefly. But I believe I can safely say that any fairly good hotel or restaurant will set before you a balanced ration that comes as near the proper thing as I can well direct. Just order a regular meal. I for one would omit the first course, of *fruit.* In a good many places they do not offer you fruit—that is, if you choose a place where the price is moderate. The breakfast food with sugar and cream I think I would omit also unless I am doing hard muscular work and am quite hungry. The bread, butter, potatoes, beefsteak, mutton chop, and ham and eggs, that come next, are as safe a diet for the average humanity as any thing I know of. I know a great many object to ham; but where it is properly cooked, and chewed thoroughly, I find it quite wholesome. It is better to skip the pie, cake, dessert, etc., entirely. I know it is something of a cross to forego some of these things, especially where they mention ice-cream, lemon-ice, and things of that sort. But I have often had severe spells of indigestion that I am sure might have been avoided had I left the table just *before* the dessert. In many places, where they furnish meals at moderate prices, no dessert is offered. In the matter of tea and coffee, if they are used without sugar or milk I do not find them objectionable providing both are weak. Strong coffee is certainly hurtful to me. Weak tea is less trouble, usually, than hot water, and that is my safest drink. A good many take milk in place of tea and coffee; but I think scalded milk, as they have it in Cuba, makes it much easier of digestion. This is especially true if the milk happens to be old. I really feel glad to be able to say that the most healthful food I know of is just about what is usually provided for the great traveling public. I would not advise going to lunch-counters if it could be avoided, unless such counter will give you a fresh beefsteak, or cook eggs to order. Fresh fish is *always* in order. It is the food our Savior provided for his loved followers when he was here on earth, and I do not know of any thing more wholesome. Fresh fried fish, nice baked mealy potatoes, and good bread and butter, constitute as safe a diet as any I know of."*

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*Please bear in mind that I would most emphatically discourage keeping open any store or market, fruit-stand, or any thing of the sort. In large cities I suppose restaurants have to be kept open for the benefit of the regular boarders, or strangers who must have their daily food on Sunday as well as other days.

In closing I wish to refer once more to the water of the Agua Caliente springs, of which I said so much in our last issue. I said I had been drinking the water for four days. About that time my brother and I started on a three-day trip across the desert; and as I was so afraid I could not get water that would agree with me on the way, two large canteens were taken along expressly for my use, and so I drank it every day for something over a week; and it was a revelation to me to find a kind of water I could drink to my heart's content without interfering with my digestion in any way; on the contrary, it seemed to me to be as nearly perfect as I had ever had it in my life. After eating sweets or things that usually produce fermentation, I would think for a time I was going to have my old troubles; but the great drafts from the canteen washed away all unpleasant taste from my mouth, and all disagreeable sensations in the region of digestion. It made me think of the words of the old hymn:

Wash me, and I shall be whiter than snow.

This water not only washed me clean externally, but it seemed to have the peculiar property of washing the food I ate as well as the internal organs until they were all clean and sweet. I do not think there was any *imagination* about this. It has occurred to me several times that perhaps it would not be possible for me to drink any water in such quantities without being exposed to a dry atmosphere and a temperature ranging from 100 up to 110 or more. There was not very much sensible perspiration; but the water seemed to disappear somewhere, so that I was ready for another big drink at the end of an hour or so.

At the town of Tempe, our destination, they claimed to have beautiful water, pumped from an artesian well away down in the rock. This water tasted very nice and pure. The temperature seemed to be pretty near that of the hot springs — perhaps a little colder; but my digestion gradually slipped back in the old track. Let me mention one other thing:

For a year or two back I have been carrying in one of my vest pockets a supply of soda-mint tablets. I take these when my mouth tastes bad, and when I have a sour stomach, etc. During the time I was at the hot springs drinking that water, I never once touched the soda-mint tablets. There was no need of it; but after the supply of that water was exhausted my fingers went instinctively into that neglected vest pocket.

I have heard a great deal about the benefits of certain hot springs or medical springs. Friends have urged me to try this, that, and the other. All I have tried before, I think, only made me "sicker still." As a consequence, I have not had very much faith in them. I am planning now to get a barrel of that water, even if it does cost a good many dollars to have it laid down here in Medina. If it produces the same result here that it did in Arizona, I shall have another reason for praising God for his wonderful gifts to the children of men.

Temperance.

LAKE SHORE RAILWAY PROHIBITS EMPLOYEES FROM USING TOBACCO OR LIQUORS; OTHER ROADS ARE ALSO WAGING WAR IN FAVOR OF TOTAL ABSTINENCE; GAMBLING PLACED UNDER THE BAN.

I clip the following from the Cleveland *News and Herald* of Sept. 24:

> The Lake Shore Railroad has joined the other roads throughout the country which are waging war against the use of liquors and tobacco by employees engaged in operating trains. The fiat has gone forth generally that employees who drink, or who frequent places where liquors are sold, are not safe men to trust with the lives of patrons, nor with the valuable property transported by the railroads. Total abstinence is essential to service in the operating department of every railroad. Gambling is also under the ban.
>
> The revolution which is being effected in these respects is shown in the rule-books which many of the managements of various roads have just issued. Without a single exception these books contain the following rules, which are similarly framed:

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* I fear I have not put sufficient emphasis on the matter of having meat of some kind more or less with every meal. I am firmly satisfied that thousands of people, especially old people, come to their graves before their time by trying to get along without meat. Oftentimes the *expense* is the objection, and yet these people do not mind sending for a doctor, even in the middle of the night, very often. The cost of one doctor's visit will pay for considerable fresh meat, especially if low-priced meat is used, and cheap meats for stews are as good as any, and sometimes better. A relative of mine well along in years, admitted she felt very much better when she had fresh meat every day, but she said they could not very well afford it. I know from what she told me that a diet too largely of fruits and vegetables gave her the distressed spells that necessitated frequent calls on the doctor.

"The use of intoxicants by the employees while on duty is prohibited. Their habitual use or the frequenting of places where they are sold is sufficient cause for dismissal."

"The use of tobacco by employees when on duty in and about passenger stations or on passenger cars is prohibited."

"Gambling is prohibited."

Among roads which have taken this action, besides the Lake Shore, are the Rock Island, Illinois Central, Michigan Central, St. Paul, Burlington, Northwestern, and Wabash.

H. A. Zeisle, superintendent of the Lake Shore, says: "We have always enforced the liquor rule rigidly, but have permitted our men to use tobacco while on duty. Some of them insist that its use keeps them from becoming drowsy. We do not have any trouble with cigarettes, as our men are all opposed to their use, and if an operating man should smoke them he would soon be drummed out of the service by his fellow-employees."

When the great railroad companies take hold of a matter like this, we are making headway sure. In my recent trip to California I was not only disgusted, annoyed, and outraged, but absolutely sickened, by the cigarette fiends who seemed to turn up almost everywhere, and take delight in puffing their foul stench into the faces of decent respectable men and women. In crossing over to Catalina Island, on the steamer, a great part of the passengers were seasick, and nearly all of the bee-keepers on board. Well, I went all over the boat, on the highest deck and on the lowest; I went to one side of the boat and then to the other, and I even leaned over the side to get a breath of fresh air. Well, everywhere I went, sooner or later some fellow squeezed up beside me and puffed his nauseating cigarette smoke in my face. I could not escape it—at least it seemed so; and I remember distinctly that I resolved then and there I would tell the railroad and navigation companies that I for one would stop traveling unless this terrible nuisance be abated; and from the above extract it would seem that the railroad companies are anticipating just what I had in mind. May the Lord be praised for this evidence of coming sanity on the part of the great transportation companies.

Kind Words from our Customers.

I inclose a check for $5.00, the remainder of which you may credit on your books, as I shall want to order some seeds of you this coming winter, and they will be paid for. I do this because at the time I have to buy seeds I am generaly short of cash, and lose crops by buying cheaper (?) seeds from some one else Last year 1 oz. cauliflower and 1 oz. Fordhook tomato, *bought of you*, gave me $126.60. This year 2 oz. of your cabbage gave $62.15, while ½ oz. cauliflower from another firm never gave me a head.

Belpre, O., Aug 24. C. C. Miller.

There is no part of Gleanings that gives me more real satisfaction than the Cuban articles, for they are highly instructive as well as quite interesting. In the one for April 1 I especially note what Rambler said; also in the Sept. 1st issue what he said relative to the Novice extractor. I always admired Rambler and his writings; and when I read the notice of his death it seemed like losing a brother as well as an able and scholarly adjunct to Gleanings—a journal second to none. What is said relative to the Novice extractor pleases me more especially, I presume, because it corroborates my personal experience. I am using one that was purchased of you 21 years ago, with which was furnished an extension rim, and it is stronger today than when it left the factory; for wherever there has a soldered joint given way it has been repaired by myself, and an extra dose of solder applied. It is a simple two-frame machine, easily operated and quickly stopped. I have extracted as high as 1500 lbs. in a day, and strained the honey, and every part of the extracting was done by my own hands. Who can beat this with a reversible? I don't say this for the purpose of boasting of my ability, but merely to show what has been done with the old Novice. I have used the reversible, but I would not give this old machine to-day for any one of them I ever saw. Please continue the Cuban articles. Elias Fox.

Hillsboro, Wis., April 13, 1903.

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For Sale.—Choice alfalfa honey, in 60-lb. cans. Prices quoted on application.
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A few mismated Italian queens for sale at 25 cents each. W. F. Stuart, Ottawa, Kan.

The September Review

contains the best article that has been published on the subject of "Commercial Organization among Bee-keepers." It is written by R. S. Taylor, and states the case so clearly that there need be no more argument over the matter for years to come.

Mr. H. R. Boardman, who has for years made a grand success of wintering his bees in a building above ground, describes this building, and tells how he succeeds in controlling the temperature and ventilators—sometimes using artificial heat. The frontispiece is a picture of the Boardman apiary and repository.

The editor gives several pages of short editorials, many of them descriptive of his recent Western trip.

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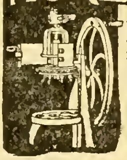

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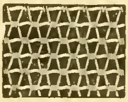

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Long Tongues Valuable

South as well as North.

How Moore's strain of Italians roll in honey down in Texas.

Hutto, Tex., Nov. 19, 1902.

J. P. Moore.—Dear Sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens. Yours truly,

Henry Schmidt.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongued bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5; dozen, $9.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

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Laws' Holy Land Queens.

W. H. Laws:—Your queens have proved to be *excellent*. My apiary stocked with your *Leather* queens is a sight to behold during a honey-flow, and the *Goldens* are beyond description in the line of beauty. Yours are the *best for comb honey* I ever saw. I want more this spring.—*E. A. Ribble, Roxton, Tex., Feb. 19, 1903.*

W. H. Laws:—The 75 queens (Leather) from you are dandies. I introduced one into a weak nucleus in May, and in September I took 285 lbs. of honey, leaving 48 lbs for winter. My crop of honey last season was 18,000 lbs. I write you for prices on 50 nuclei and 150 Leather queens.—*Joseph Farnsworth, Idaho Falls, Idaho, Feb. 16, 1903.*

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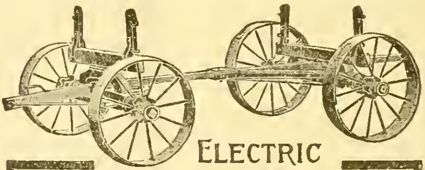


ELECTRIC

Handy Farm Wagons make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous **Electric Steel Wheels**, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel hounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free.

ELECTRIC WHEEL CO., BOX 95, QUINCY, ILL.

Cuba.

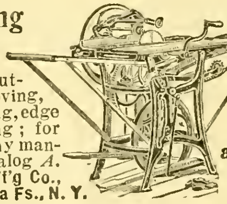
If you are interested in Cuba and want the truth about it, subscribe for the

HAVANA POST,

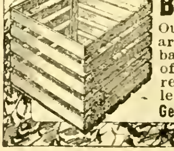
the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.



Foot and Hand Power



BUSHEL CRATES

Our **ventilated** bushel crates are better and cheaper than baskets—8 cents each—made of best material. Shipped ready to put together. Booklet No 12 full particulars free.
Geneva Cooperage Co., Geneva, O.

NOTICE!

This is the last time this ad appears for this season, so hurry in your orders. Will send queens by return mail so long as they last. Remember Quirin-the-queen-breeder for another season.

A FEW TESTIMONIALS.

P. F. Meritt, of No. 13 Breckenridge St., Lexington, Ky., writes: The bees sent me last July did splendidly. Each colony has at least 75 lbs. of honey—pretty good for two-frame nuclei.

Mr. J. Roorda, of Demotte, Ind., writes: Send me six more queens, the 48 sent me last spring are hustlers.

Mr. Wm. Smiley, of Glasgow, Pa, writes: Your bees beat all the rest, now send me a breeder of the same kind.

A. Norton, Monterey, Calif., writes: Your stock excels the strain of Mr. ——, which is said to outstrip all others. Your stock excels in profitable results as well as in beauty.

Price of Queens After July First.

	1	6	12
Selected	$ 75	$4 00	$7 00
Tested	1 00	5 00	9 00
Select Tested	1 50	8 00	
Extra Selected Tested—the best that money can buy	3 00		
Two-frame Nuclei, no Queen	2 00		

Add the price of whatever queen is wanted to that of nuclei. Our nuclei build up fast, and if not purchased too late will make some surplus.

Queen-rearing is our specialty; we give it our undivided attention, and rear as many queens (perhaps more) as any breeder in the North. No order is too large for us, as we keep 300 to 500 on hand ready to mail. Send all orders to

Quirin-the-Queen-Breeder, Parkertown, OHIO.

Victor's Superior Italians

go by return mail again. Owing to several large queen contracts, a contract for a *solid carload* of bees that went to Colorado, 85 three-frame nuclei to same State, numerous smaller orders for bees, and a good queen trade, it has been necessary for me to cut out my ad. for the past three months to keep from being swamped with orders. I am glad to notify my patrons that I am at last able to fill orders promptly with as fine queens as ever headed a colony, regardless of their source, at the following reasonable prices :

1 Untested queen, 75c ; six, $4.00.
1 Select untested queen, 90c ; six, $5.00.
1 Tested queen, $1.00 ; six, $6.00.
1 Select tested queen, $1.50 ; six, $8.50.

Breeders, $3.00 to $7.00 — these are as good as the best.

W. O. Victor, Wharton, Tex.
Queen-specialist.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos, are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5.00 for 6 ; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Geo. J. Vande Vord

Queen-breeder. **Daytonia, Fla.**

Apiary for Sale.

Owing to my age I have decided to sell my yard of 16 colonies, with extra hives, supplies, etc. Price only $75 for the entire outfit. Some colonies have made 75 lbs. each, comb honey, this season. A bargain. Call on or address

R. L. Holman, Springfield, O.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts
E. R. ROOT, Editor of Apicultural Dept.
J. T. CALVERT, Bus. Mgr.
A. L. BOYDEN, Sec.

TERMS. $1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, *in advance;* or two copies to one address, $1.50; three copies, $2.00; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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Special Notices by A. I. Root.

THE AUTOMOBILE; ITS LIKENESS TO ANIMAL LIFE.

The thought embodied in my Home paper for Aug. 15 finds an echo in one of the automobile periodicals. A certain machine, we are told, had an acute attack of appendicitis, and a surgical operation was performed; but the only surgical instruments required were a wrench and an oil can.

OUR GRAPES OVER THE BEE-HIVES.

This year our Concord grapes little less than a ton, were all sold at 2 cts. per lb., customers coming right here for them. It is very seldom that we fail to get a crop, and usually it is much larger than this year, and the vines received no attention whatever except to prune them and tie them up to the stakes. Quite a profitable crop, and little or no attention is required.

CALIFORNIA BEE RANCH, ETC., FOR SALE.

Mr. J. S. Harbison offers for sale 300 colonies of bees and quite a tract of land near San Diego, Cal. He will send full particulars on application. Address J. S Harbison, 1065 Twelfth St., San Diego, Cal.

THE KING OF MICHIGAN POTATO.

Here in our Medina clay soil this potato is not only king in looks but this year it is king in quality—the best potato we can get hold of, grown in this locality. After I dig my potatoes in Northern Michigan, which will be in about two weeks, I will make a further report.

THE BEE-KEEPERS' REVIEW FOR SEPTEMBER.

If not taking the *Review* right along, I would advise every reader of GLEANINGS to send for the September issue as a specimen copy, even if they do not do any thing more; and after reading the *Review* I hope they will decide to take it right along. The editorials in regard to the California convention are worth the price of the journal for a year.

SHALLOTS—NEW CROP READY TO SEND OUT.

We have have harvested a limited quantity of shallots that we are ready to send out at 10 cents a quart or 60 cents a peck. If wanted by mail, add 10 cents a quart extra for postage. In many loccalities they are better planted in the fall; but as they keep better than any other variety of onions, you can plant them in the spring for early bunch onions or at any time you get ready. Our Egyptian or winter onion-sets are all sold for this season.

SYSTEMATIC POMOLOGY—A NEW BOOK.

You might think that the above book, by F. A. Waugh, told something about growing apples; but in reality the whole book is written in regard to a scientific and systematic method of classifying and naming our apples and other fruits. Of course, it describes as well as names the different varieties; and it discusses what kinds we should plant, and what well-known varieties we should drop. I know there is very much need of such a book; but I am afraid the average fruit-grower will hardly want to take the time to go through the matter as the author of this book does. We can furnish it postpaid for $1.00 If it is well studied I think it will assist greatly in growing better varieties, and, as a consequence, secure better prices. While the book is devoted particularly to apples it discusses in the same way strawberries, raspberries, gooseberries, grapes, plums, cherries, and miscellaneous fruits. There are 300 pages, and the book is fairly illustrated.

LETTUCE-GROWING UNDER GLASS FOR A WINTER OCCUPATION.

Now is the time to get in your lettuce seed for winter-growing under glass. Make as nice a bed as you know how, of the richest dirt you can hunt up, having a pretty good mixture of sand, and sow your seeds in the open air. Don't have them too close together. One plant to every square inch will be close enough. Plants started in the open air, and hardened off by a light frost or two, are much hardier and stronger than plants grown under glass. It is a good plan to have your bed made so that you can put your sash over the plants if very severe weather comes before you are ready to take them up and put them into the greenhouse. The first thing is to get some seed in the ground as soon as possible. We have a splendid stock of Grand Rapids lettuce seed grown specially for us. If you have not been in the habit of using seed of our growing, I wish you would try about a nickel's worth side by side with seeds you get in the ordinary market, and see which furnishes the nicest plants true to name. With every order for seeds we will (if you mention it) send two little pamphlets giving the very latest information in regard to growing lettuce under glass. I have visited and personally examined some of the largest and most successful growers in the country, and these pamphlets tell all about it. We also have a fine stock of seed of the Big Boston, grown specially for us, at the same price as the Grand Rapids. Ounce, 5 cts.; 1 lb, 50 cts; 5 lbs. for $2 00. If wanted by mail, add 10 cents per lb. for postage and packing.

HEALTH NOTES.

In our Health Notes in this issue I omitted to say that, where people keep well on a fruit and vegetable diet, of course it is all right. I have no quarrel with vegetarians—that is, where one keeps strong and well on such a diet. Another thing, I omitted mentioning baked apples. Nice ripe apples, baked without any sugar, with graham bread and milk, make about as wholesome a diet for me most of the time as any thing I know of. Just now I am greatly enjoying baked Gravensteins.

A word about milk. For some time past, Mrs. Root has been sterilizing all of our milk by warming it up to 130 by a dairy thermometer. This not only makes it much easier of digestion (for it is perfectly free from bacteria), but it keeps a very much longer time without souring. She says she would not be without one of these cheap dairy thermometers for almost any thing. The amount of milk saved this way from spoiling would soon pay for it. This temperature does not injure the taste of the milk at all, and does not seem to hurt it for raising the cream.

FREE ADVERTISING OF HONEY-PLANT SEEDS, ETC.

We try to be very careful not to let any thing get into the reading columns of GLEANINGS that can be classed as free advertising; in fact, we are receiving communications almost all the time, which, on investigation, we find are simply schemes to get advertising-matter free. The following will explain itself:

> MR. ROOT:- After reading the article on page 761 I wrote Mr. Watts, enclosing directed and stamped envelope, asking him to send me a few seeds of the plant mentioned in the article referred to, and received the enclosed reply. I don't think I shall invest at the price mentioned.
>
> Harrisville, R. I., Sept. 11. WM. J. TRACY.

Below is the answer friend Tracy received:

> DEAR SIR: Your letter is at hand, asking me for the olive seed. I have some left. You can get them at 50 cts. per dozen. I can send as many as five dozen in a single letter. If you honor me with your order I will give you instructions how and when to plant. A. C. WATTS.
>
> Nettie, Texas, Sept. 6.

If Mr Watts has any thing to say by way of defense we shall be glad to hear it The description of his new honey-plant referred to, page 761, might encourage any one in thinking the seeds were to be given away; and I for one begin to be a little suspicious of anybody who has seeds he wants to *give* away. Why not say right out plain that you can furnish seeds at 5 cts. a package? Anybody who wants them would surely be willing to pay that small sum.

CONVENTION NOTICES.

The annual meeting of the Northern Illinois Beekeepers' Association will be held in the Court-house, at Rockford, Ills., on Tuesday and Wednesday, Oct. 20 and 21, 1903. A good program is being prepared, and all interested in bees are invited to attend.

Cherry Valley, Ill. B. KENNEDY, Sec.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Barnes or Seneca Falls foot-power or scroll saw. F. T. HOOPES, E. Downington, Pa.

WANTED.—To sell 75 colonies bees in good shape; will sell cheap. G. P. COOPER, Pikeville, Tenn.

WANTED.—Comb and extracted honey. See honey column GLEASON & LANSING, Buffalo, N. Y.

WANTED.—The address of all who are still in need of cartons. QUIRIN THE QUEEN BREEDER.
Parkertown, Ohio.

WANTED.—You to read the adv't of ginseng on page 781, Sept. 1. For prices address
A. P. YOUNG, Cave City, Ky.

WANTED.—To exchange a two hundred-egg Reliable incubator, been used very little, for choice comb or extracted honey. CHAS. KOEPPEN,
Fredericksburg, Va.

WANTED.—To sell fine job-printing outfit, nearly new. J. W. STEBBINS, Broad Creek, Va.

WANTED.—To sell ginseng seed at 80 cts. per 100.
L. A. JUNOD. Mulberry Grove, Ill.

WANTED.—To sell bees and Brown Leghorn cockerels. H. M. MOYER, Rt. 2 Bechtelsville, Pa.

WANTED.—To exchange honey-cartons at $1.00 per M., and shipping-cases for the same, for honey.
C. B. HOWARD, Romulus, N. Y.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—Old postage stamps, especially foreign. Send list of what you have to offer and price asked with samples. A. L. BOYDEN, Medina, Ohio.

WANTED.—To sell half interest in my apiary, pineapple and orange plantation. Good apiarist will have exclusive charge D DALY, La Gloria, Cuba.

WANTED.—To buy quantity lots of choice white-clover comb and extracted honey. Price must be low. B. WALKER, Clyde, Ill.

WANTED.—As a partner in the bee-business, a young man with some experience and $500. I have 500 stands of bees, with range for 1000.
W. N. CANNON, Greenville, Ala.

WANTED.—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell all or part of 250 colonies of Italian and Carniolan bees; all in good eight-frame hives; have made good crop of honey this season.
E J. JOHNSON, 302 So. 10th St., Rocky Ford, Col.

WANTED.—To sell or exchange Bates and Edmonds gasoline-engines, 2½ h.-p., $100; 4 h.-p., $180. motor-cycle frames built to order.
ROBT. B. GEDYE, Columbus, Ohio.

WANTED.—To sell full colonies Italian bees in 8 or 10 frame Dov'd hives, with plenty of honey to winter, $5.00 each; in lots of 25 $1.50 each.
F. A. GRAY, Redwood Falls, Minn.

WANTED.—One or two tons of honey, 4×5 sections preferred; correspondence solicited, giving lowest cash price, etc.; and to parties not living too far away in this State, if favorable, I will call on them.
A. W. SMITH, Birmingham, Mich.

WANTED.—To sell 100 hives of bees in eight-frame Chaff hives with tin roofs, inside room for two supers, all complete, for $3.00 a hive where they stand.
CATHARINE MCCASLIN,
308 Pittsburg St., New Castle, Pa.

WANTED.—To exchange postage stamps with collectors, especially in West Indies, Europe, British colonies, Mexico, and United States. State what you have to offer and what you want in exchange.
A. L. BOYDEN, Medina, Ohio.

WANTED.—To sell 220 colonies of bees in 2 and 3 story hives, including all empty hives, supers, tank, 6 frame extractor, in fact every thing needed for a first-class apiary, and in order to render a quick sale will take $550, cash. A. UNTERKIRCHER,
57 Evergreen Avenue. Riverside, Cal.

WANTED.—An experienced man in bee keeping to come to Cuba and work on half shares; land is 3 miles from city. There are a good number of hives already. Married couples are preferred. Rates to Sagua by Munson's steamship line are very low.
J. MCCREIGHT THAIR, Sagua la Gde., Cuba.

WANTED.—The undersigned and two expert beekeepers might go to Cuba or Jamaica for six weeks or two months to assist or take charge of bees, and give advice as to best methods of handling. Time preferred, owing to engagements with Dominion government, December 15 to early February. Address
R. F. HOLTERMANN, Brantford, Ont., Can.

PAGE & LYON,
New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .
BEE-KEEPERS'
SUPPLIES. . . .

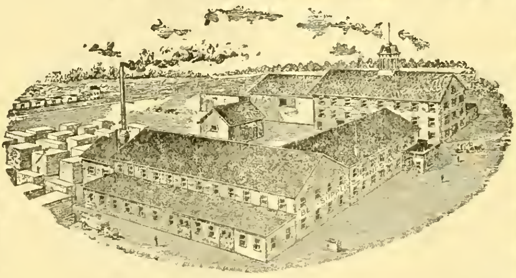
Send for Our Free New Illustrated
Catalog and Price List. . . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



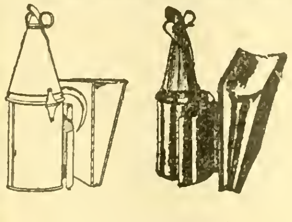
Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE- SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa,
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

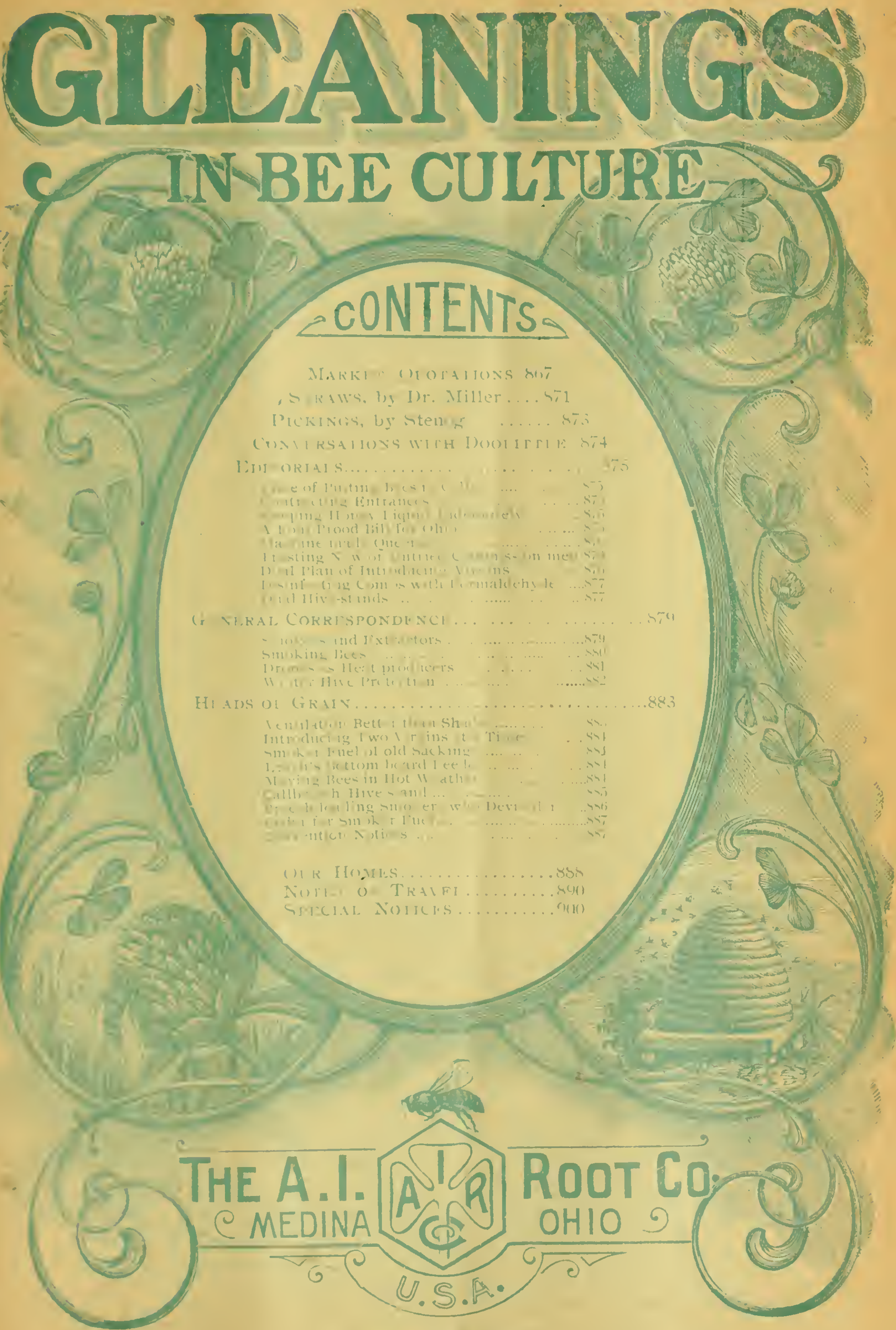
Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI OCTOBER 15 1903 Number 20

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

Entered at the Post-office, at Medina, Ohio, as Second-class Matter

DON'T BUY

SUPPLIES

Until you see our 43d annual catalog. We've a carload of Root's Goods, and supply many goods not advertised in our catalog.

Root's Sections, Weed's New Process Foundation a Specialty.

We can supply these goods at their prices, and thereby save you valuable time and heavy freight charges. Bees, queens, and nucleus colonies from the very best strains in America. A 32-page illustrated catalog free.

W. W. CARY & SON,
Lyonsville, Massachusetts.

Northeastern
and
New England

Bee-Keepers!

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. MASON,
Mechanic Falls, : Maine.
Manager The A. I. Root Co.'s N. E. Agency

TORONTO

is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-Keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

E. GRAINGER & CO.
12 Yonge Street Arcade.

Special Notice to Bee-keepers!

BOSTON

Money in Bees for You.
Catalog Price on

ROOT'S SUPPLIES

Catalog for the Asking.

F. H. Farmer, 182 Friend St., Boston, Mass.
Up First Flight.

A Neat Package Finds a Ready Buyer.

Pack your honey in the Non-drip Cases made by The A. I. Root Co.; sold in MICHIGAN by

M. H. Hunt & Son,
Bell Branch, Mich.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark, that is, there will be "Fancy White," "No. 1 Dark," etc.

Milwaukee.—The market continues about the same as when we last reported. The receipts have been quite liberal, and generally of good quality and condition. While the sales have not been as good as could, desire we yet expect the demand will improve as the cool season comes on, as the market seems healthy. We continue to quote fancy 1-lb. sections 15@16; No. 1, 14@15. Extracted, in barrels and cans, white, 7@7½; amber, 6@6½ and wanted. Beeswax, 30.
A. V. Bishop & Co.,
Oct. 5. 119 Buffalo St., Milwaukee, Wis.

Chicago.—The volume of sales is larger than at this time last year, and the supply more than corresponds with sales, but the prices and good quality of honey are expected to make a larger demand than we have had for several years. No 1 fancy sells at 13@14 with practically no sale for off grades, which are quoted at 10@12. Extracted white, 6@7; amber, 5@6, according to quality and kind of package. Beeswax, 28@30.
R. A. Burnett & Co.,
Oct. 7. 199 South Water St., Chicago, Ill.

Buffalo.—The demand for white comb honey is better than it was. The trade is particular, and wants only the white, clean stock. If the wax is yellow from travel-stain it does not sell well and price has to be cut. Fancy white comb, 14@15; A No 1, 13½@14; No. 1, 13@13½; No. 2 12@12½; No 3, 11@12; No. 1 dark, 11@12; No. 2 dark, 10@11. White extracted, 6½@7; amber, 6@6½; dark, 5½@6. Beeswax 28@30.
W. C. Townsend,
Oct. 10. 178 & 180 Perry St., Buffalo, N. Y.

New York.—Comb honey is arriving quite freely now, and is finding ready sale at 15c for fancy white; No. 1 white, 13@14; No 2 white and amber, 12. Very little buckwheat on the market as yet, and prices are hardly established. Extracted honey is ruling about the same as last, with plenty of offerings of all grades. Beeswax is somewhat declining, and selling at present at 28@29.
Hildreth & Segelken,
Sept. 28. 265-267 Greenwich St., New York.

Cincinnati.—The demand for honey is a little better. The prices rule about the same. Extracted is sold as follows: Amber, in barrels, 5@5½—in cans, about ½c more: water-white alfalfa, 6@6½; white clover, 6¾@7½. The comb-honey market is quite lively, and sells as follows: Fancy water-white, 14½@15½. Beeswax is in good demand, and I will now pay 30c delivered here.
C. H. W. Weber,
Oct. 7. 2146-8 Central Ave., Cincinnati, Ohio.

Albany.—Honey market more active here, with prices as follows: fancy white comb, 16; A No. 1, 15@15½; No. 1 15; medium, 14@14½; buckwheat, 13½@14. Think these prices are better than will be a month later as grocerymen are stocking up now. Extracted white, 7@7½; amber, 6½@7; buckwheat, @6½. Beeswax, 28@29. Commission, five per cent.
MacDougal & Co.,
Oct. 9. 375 Broadway, Albany, N. Y.

Philadelphia.—Comb honey is arriving quite freely, and quality is generally a little off on account of the cool weather we had the past season. Very little really fancy honey arriving in this market. We quote A No. 1 at 15@16; amber, 13@14. Extracted, fancy white, 7@8; amber, 6@7. Beeswax, 32c, and in good demand. We are producers of honey, and do not handle on commission.
Wm. A. Selser,
Oct. 8. 10 Vine St., Philadelphia, Pa.

Denver.—There is a good demand for comb honey in carload lots. Home market quiet at following prices: No. 1 comb honey, $2.75@3.00 per case; No. 2 ditto, $2.40@2.50 per case. Extracted honey, 7@7¾ cts. per case. Beeswax wanted at 22@25 cts per pound.
Colorado Honey-producers' Association,
Oct. 10. 1440 Market St., Denver.

Schenectady.—Weather conditions are favorable, and market very active for both comb and extracted. We quote fancy white, 16; No. 1, 15; mixed, 13@14; buckwheat, 12@13. Extracted, light, 6½@7½; dark, 5½@6.
Chas. McCulloch,
Oct. 19. Schenectady, N. Y.

Toledo.—The honey market has brightened up some owing to cool weather, and is in good demand at the following prices: Fancy white comb, in no-drip cases, 16; No. 1, 15. Extracted, in barrels, 7; in cans, 8. Beeswax, 26@28.
Griggs Brothers,
Oct. 3. 214 Jackson Ave., Toledo, O.

Albany.—Honey market firm here for comb of any grade. Fancy-white comb, 16; A No. 1, 15; No. 2, 14½@15; buckwheat, 13½@14. Extracted white, 7@7½; amber, 6½@7; buckwheat, 6@6½. Beeswax, 29@30.
H. R. Wright,
Oct. 10. 326, 328, 330 Broadway, Albany, N. Y.

Kansas City.—The demand for comb and extracted honey is good. We quote fancy white comb, 24 sections per case, $3.00; No. 1, $2.90; No. 2 and amber, $2.75. Extracted white, per lb., 7; amber, 5½@6. Beeswax, 25@30.
C. C. Clemons & Co.,
Oct. 6. Kansas City, Mo.

Boston.—Comb honey continues to be in good demand. Fancy cartons we quote at 17@18; No 1, 16. Glass-front cases, fancy white, 16; No. 2, 14. Extracted, Florida, 6½@7½, according to quality.
Blake, Scott & Lee,
Oct. 8. Boston, Mass.

Cincinnati.—Comb and extracted honey are coming in freely, and the demand is good with steady prices. Amber extracted, 5¾@6½; white clover, 6½@7½. Fancy comb honey, 15. Beeswax, 30.
The Fred W. Muth Co.,
Oct. 1. Front & Walnut, Cincinnati, Ohio.

San Francisco.—Honey, new comb, white, 12@13; light amber, 11@12. Extracted, water-white, 6@6½; light amber, 5½@6; dark amber, nominal. Beeswax, 30.
Ernest B. Schaeffle.
Sept. 23. Murphys, Cal.

Detroit.—Fancy comb honey, 16; No. 1, 14@15; No. 1 dark, 12@13. Extracted white clover, 7@7½. Beeswax, 28@30.
M. H. Hunt & Son,
Oct. 8. Detroit, Mich.

Toronto.—Present honey-market quotations are as follows: Comb, $1.25@$1.50 per dozen; fancy, $1.50@$1.75. Extracted, first quality, 6@8 in wholesale lots.
Sept 30. E. Grainger & Co., Toronto, Ont.

For Sale.—Extracted choice ripe clover honey in cases of two 60-lb. cans each, at 8 cts. per lb.; 335-lb. bbls. at 7½ cts per lb.
G. W. Wilson, R. F. D. No. 1, Viola, Wis.

For Sale.—Several barrels of extracted honey, fine flavor and quality, at 7c per lb.; sample 6c.
G. Routzahn, Biglerville, Pa.

For Sale.—6000 lbs. choice ripe clover honey, new; 60-lb. cans.
Elias Fox, Hillsboro, Wis.

For Sale.—Fancy basswood and white-clover honey; 60-lb cans, 8c; 2 cans or more, 7½c; bbls., 7½c.
E. R. Pahl & Co., 294 Broadway, Milwaukee, Wis.

For Sale.—Fancy comb and extracted honey; extracted in 60-lb. cans. Prices quoted on application.
William Morris, Las Animas, Col.

For Sale.—5000 lbs. of fine comb and extracted honey, mostly all comb.
L. Werner,
Box 387. Edwardsville, Ill.

Wanted.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us.
Evans & Turner,
Columbus, Ohio.

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are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for w catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

The W. T. Falconer Man'f'g Co.,
Jamestown, New York.

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

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1-lb. sq. jars with corks......$5.00 gross	2-lb. sq. jars with corks......$7.40 gross
Eagle or No. 25..................$5.75 "	Nickel Cap jar, holds 13 oz. $5.50 "

The last is a fancy jar, and makes a fine package for exhibition. Discount on quantities of jars; the larger the quantity the lower the price. Catalog describing honey-packages, shipping-cases, cartons, bee-hives, bees, and every thing a bee-keeper uses, mailed upon application.

Tested Italian Queens, $1.00; Untested, 75 cts.

I. J. STRINGHAM,
Apiaries, Glen Cove, L. I. **105 Park Place, New York.**

Root's Goods in Chicago

The business for many years conducted by George W. York & Co., at 144 East Erie Street, as agent for The A. I. Root Company's supplies, is this day transferred to The A. I. Root Company to be conducted as a Branch Office. All outstanding accounts will be paid George W. York & Co.

The policy of the Branch House will not be changed. We shall continue to serve the interests of bee-keepers to the best of our ability, and to increase our facilities whenever possible for such service. Mr. York will still be in the same office with us, and the benefit of his years of experience with this trade will thus be available.

Please note change of name to avoid confusion in our work.

Oct. 1, 1903. **The A. I. Root Co.**

All orders, remittances, inquiries, etc., should be addressed to The A. I. Root Company, 144 East Erie Street, instead of George W. York & Co.

Statement by Geo. W. York & Co.

To Our Customers and Friends:

In transferring back to The A. I. Root Company the bee-supply business which we took over from them some years ago, we do so with regret, as we have labored hard to build up a large and honorable trade in bee-appliances, and value beyond expression the valuable patronage accorded us during the years. We trust the same will be continued to our successors in the business.

Please note that this transfer does not in any wise affect our publishing the American Bee Journal, or handling bee-books and queens. But we expect from now on to be able to devote more time to the Bee Journal, as for years we have had "too many irons in the fire" to give it the attention it requires.

GEORGE W. YORK & CO.

Chicago, Ill., Oct. 1, 1903.

To New Subscribers!

Only 20c

will get a new subscriber the **American Bee Journal** every week from now to the end of this year (1903). During that time it will contain a full report of the recent

Los Angeles Convention

of the National Bee-keepers' Association, besides the usual other valuable reading matter in each week's issue. Every reader of *Gleanings* should also have the **American Bee Journal** regularly. Sample copy free. Ask for it.

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144-6 East Erie St., Chicago, Illinois.

We are the Largest M'f'rs of Bee-keepers' Supplies in the Northwest.

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E. Grainger & Co., Toronto, Ont.,
Sole Agents for Canada.

Gus. Dittmer, Augusta, Wis.

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In No-drip shipping cases. Also, Amber extracted, in barrels or cans. Quote your best price delivered Cincinnati. ∴ ∴ ∴ ∴ ∴

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We have on hand ready for PROMPT SHIPMENT
The Largest Stock we ever Carried
of HIVES, SECTIONS, and all Other SUPPLIES.

Perfect Workmanship and Finest Material.
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No trouble in setting them up.
Our customers say it is a pleasure.
We are not selling goods on NAME ONLY,
But on their Quality.

G. B. LEWIS COMPANY,
Manufacturers Bee-keepers' Supplies.
Catalog Free. Watertown, Wisconsin, U. S. A.

Let Me
Sell or Buy Your Honey

If you have some to offer, mail sample with lowest price expected, delivered in Cincinnati.
If in Need state quality and kind wanted, and I will quote you price. We do business on the cash basis in buying or selling.

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Seeds of Honey-plants.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
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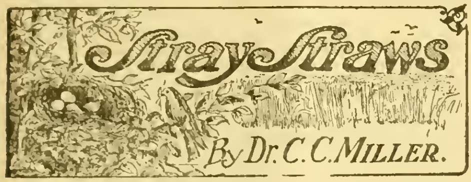


Stray Straws

By Dr. C. C. Miller.

WHAT IS SAID on p. 850 about the scarcity of water reminds me that all the water at Grand Canyon is brought in great tanks on cars, and I was told that it was brought from a distance of 150 miles!

C. P. DADANT has done me a great favor. You know he has had only from 2 to 5 per cent of swarming heretofore. Well, he reports for this year in *Revue Internationale* "a perfect avalanche of swarming." So I don't feel so bad that my bees were so bent on swarming. It was in the air.

OTHERS may think as they like, but so well convinced am I that in this locality bees sting black more than white that I wear in summer white trousers, although for the sake of looks I'd much prefer black. [Perhaps you are right, but I have never been able to see that the bees make very much distinction except that they sought out black spots.—ED.]

UNCLE SAM, in order to keep the wheels of government running, pays out each minute of the 24 hours of each day $1270.75. But as he collects during the same time $1403.36, the old gentleman is able to salt down in his stocking $132.61 every minute, or $190,836 a day. If he isn't too extravagant in other respects, he ought soon to save up enough to buy him an automobile.

IN MOVING BEES that ten days' journey, p. 847, wouldn't you advise water in some form? [Yes, indeed, the bees ought to be given water. In shipping bees by the carload it is a good practice and almost an absolute necessity in hot weather to give them water through the wire cloth, either by means of wet sponges or by spraying or sprinkling the wire cloth with a broom sopped in water.—ED.]

FORMIC ACID is still frequently spoken of as the poison of the bee-sting. Nearly 20 years ago Cheshire wrote of the poison, "Its active principle seems to be formic acid, probably associated with some other toxic agent," and Cowan speaks of it much the same way. But latest investigations, as formerly reported, I think, in GLEANINGS, show that the poison is something separate and distinct from formic acid. Haven't time to look it up, but I think Dr. Langer is the authority.

A FRIEND asks, "Is good ripe extracted honey harmful for a person to eat, if that person is afflicted with liver, kidney, and bladder trouble?" One might eat too much bread, or too much of any thing, and one might eat too much honey. But used in moderation I should expect no evil results from eating ripe honey where sugar would be put entirely under the ban. The mischief in such diseases comes from the burden of changing cane to grape sugar. The change is already made in honey.

WHAT DOES M. W. Shepard mean, p. 841, by speaking of spacing ¼, ⅜, and ½ inch? [What he meant, probably, was close and wide spacing. But his figures do not mean much unless we know the *width* of his *top-bars*. A top bar 1⅛ wide with ¼ inch between the frames would give the regulation 1⅜ spacing, now almost universal. But what J. E. Pond really advocated was spacing 1¼ from center to center—at least not more than 1⅜. A few years ago the spacing was 1⅜ and 1½ from center to center. Now 1½ is being gradually abandoned, and 1⅜ is coming to be the regular standard throughout all modern bee-appliances. Close spacing results in the building of less drone comb and the storing of less honey over the brood in a brood-frame. After all, 1⅜ is a very nice compromise between the wide and narrow extremes.—ED.]

WHEN BEES ball their own queen, don't they generally do it to protect her? Often I have had them ball their queen; and if I immediately close the hive and leave them for some hours undisturbed, I do not expect the queen to be any the worse for it; but if the disturbance were kept up long enough the balling would kill her — starve her — just as a mother has sometimes killed her baby by too much care, smothering it. [Bees balling a queen to protect her—why, that is possible, but I have always associated the idea of balling with the feeling of hostility on the part of the bees. I never saw a ball of bees yet where the bees were not tugging and pulling at the queen. If they were endeavoring to protect her, would they not turn right face about, prepared to grab the intruder, just as they stand when they catch a robber on the wing at the entrance? I should like to know what friend Doolittle thinks of such a proposition.—Ed.]

Well, as I was saying, heretofore the biggest yield I ever had from a single colony was 192 sections; this year it was 300, with a number of colonies tagging pretty closely after it. I credit it partly to selecting best storers to breed from, but chiefly to the phenomenal flow of white clover. Bees stored from it till Sept. 1; and even now, Oct. 5, a good deal of white clover is yet in bloom. [Well, well! that's good. We congratulate you, doctor. Not many years ago you were lamenting because your locality was so poor, and I was urging that you go to a place where you could get basswoods as well as clover? I think you said something to the effect that you were too old a bird to move, and that you would take your chances. But, look out! Some fellow will be moving over next to one of your yards. As I made you tell the yield, I will help to fight him off in case he does come.—Ed.]

A. I. Root will need a whole lifetime to find just the right ration to keep him in perfect health; and when he has found it he'll find it needs to be changed every time conditions change; and then when he has found the ration to fit each different condition he'll find it will not exactly fit any stomach in the world but his. Don't understand I'm throwing mud at A. I. Root for his investigations — he's doing good; and although he may never reach the *exact* knowledge he's seeking, he's all the time giving us useful pointers, and I for one am watching his investigations with interest. [You are exactly right when you say that a ration that will fit one man's stomach will not fit that of another. A very good rule is to eat what agrees with one, providing his judgment is not too much swayed by what he *likes* rather than by what makes him *feel well* and *sleep well*. When I get run down I invariably have to get back to lean beefsteak, with some simple cereal food or toasted bread.—Ed.]

Replying to those who say that the drones are needed for heat, C. P. Dadant gives the following clincher in *American Bee Journal:* "If drones had been intended at all for warmth, they would have been kept when the weather is cold in the spring. But the reverse is the case. Let there be a few weeks of warm weather, early drones will be reared; then let a cold spell come when the brood needs care and warmth, and at that very time you will see the workers persecuting the drones, driving them out mercilessly, one by one, to tolerate them again when the heat returns" [Yes, indeed, that does seem like a clincher; but is it not possible that, during hot weather or the swarming season, they help to increase the heat so that comb-building may fairly progress? I know this: That drones have a good deal of animal heat, for I once put a double handful of them in my hat, and then astonished the natives by doffing my hat to a crowd, to their utter dismay, resulting in their pawing the air and scattering for cover. As I walked up town I could feel a considerable degree of warmth, although I must confess the great clumsy fellows crawling through my hair gave me a sort of "buggy" feeling. See page 881.—Ed.]

Speaking of the wax-press as a honey-squeezer, p. 836, a great deal of honey in Europe is pressed out, heather honey being too thick to be emptied by an extractor. [Very true. The trouble in this country is that Americans seem to feel that chunks of honey can not be treated in any way but through the solar wax-extractor. This always impairs the flavor of the honey, even if it does not ruin it. It is high time that practical bee-keepers were doing some squeezing as well as extracting. A honey-press in European catalogs is a regular article of sale, and they would no more be complete without a honey-press than without a honey-extractor. There is a great deal of chunk honey broken out from combs built to covers, behind division-boards, etc., that will accumulate in spite of good bee-keepers and fairly good management. In the rush of the season one is apt to have more than he can do, with the result that the bees get ahead of him, and build chunks of honey where they ought not to. The only rational way to treat these is to put them into a press, squeeze the honey out cold, then melt the wax afterward. The honey will bring two cents a pound more, and the wax will be much handier to run through the wax-press.—Ed.]

If I may be allowed to say a word on the matter of diet, I should say that the one thing above all others needed by this nation is to eat less. A large number whose digestive machinery is constantly out of repair would be greatly benefited by having all their meals cut square in two; and a great majority of those who are not engaged in severe physical labor would get more nourishment from their food if they had only two-thirds as much. The great study seems to be how to get up some new dish more appetizing so as to get more food eaten, and condiments of the hottest kind are used to whip up the jaded stomach to make it carry its load. No wonder the poor thing balks. The no-breakfast fad is probably doing good to many people, just because they can't gorge themselves as much in two meals as they can in three. Possibly they might be better off — I don't know—if they would eat three meals a day, and eat only the right things and the right amount; but it is easier to cut out one meal a day than it is three times a day to obey the injunction of the wise man, "Put a knife to thy throat, if thou be a man given to appetite." If you dismal dyspeptics would cut out of your meals all the things that you know hurt you, and a third of the things that are good for you, this would be a good deal brighter world. [I have known some children that have had to go to bed hungry, simply because there was not any thing in the house to eat, or very little at least, and yet they were ruddy and healthy. A stomach occasionally empty for ten or twelve hours is sometimes just the condition that one needs. There is too much overloading; and, as you say, if the quantity of our rations were cut down we should live longer and better.—Ed.]

Pickings from Our Neighbors' Fields
BY
"Stenog."

The following is from the *Morning Echo*, of Bakersfield, Cal. It is an account of one of the most gratifying arrests known to bee-keeping. Rambler once said that if one undertakes to do any thing in California he must "bore with a mighty big auger." It seems that stealing there is sometimes carried on in that way.

Deputy Sheriff Johnson and F. D. Lowe returned last night from the Hoy ranch with a large part of the honey which had been stolen from Mr. Lowe. They were unable to bring it all at one load, so the rest was left at Sunset.

Deputy Sheriff Johnson, who was interviewed last night, gave the facts of the detection and arrest of the thieves and the discovery of the stolen goods as follows:

A week ago last Sunday Mr. Lowe, who has a bee-ranch at Rosedale, sent for Deputy Sheriff Johnson, told him of the loss of his honey, and engaged him to help find it and capture the persons who stole it.

It was dusk when Mr. Johnson reached the Lowe ranch, but they succeeded in getting a few clues that night. They found that the honey had been moved from the store-room to the road in Mr. Lowe's own wheelbarrow, and that an effort had been made to obliterate the tracks by sweeping them with a brush. The next morning the deputy sheriff, who, by the way, is a trailer of long experience, identified the tracks of one of the horses that had hauled the stolen honey away. One of the animal's feet was crooked, and it wore a peculiar shoe. This track was followed into town and to a point where it turned south.

Deputy Sheriff Johnson then made a search to convince himself that the honey had not been shipped from Bakersfield or Kern. For certain reasons he could not take up the search for a couple of days, and in the meantime Mr. Lowe went out to the Hoy ranch and secured sufficient evidence to swear out a search-warrant. With this the two, with Deputy Sheriff Stanley, took up the trail and followed the peculiar track very easily to the Hoy place. They secured one can of honey here, and arrested the elder Hoy. While Deputy Sheriff Staley brought the prisoner to town, Johnson and Lowe tracked young Hoy and Westley to the upper ranch. The young men were out hunting, and returned at ten o'clock at night to find the deputy sheriff and the bee-keeper awaiting to receive them. The men were well supplied with arms, having, besides their hunting outfit, six rifles, two shotguns, and a couple of six-shooters.

As soon as they had landed their prisoners in jail, Johnson and Lowe went back after the honey, which they found in a cabin belonging to a sheep man about 500 yards from the Hoy cabin. It was cleverly concealed in a corner of the room, and the door and windows were securely nailed up.

There were 26 shipping-cases containing 24 sections each, and seven supers containing 263 sections. It was impossible to bring the entire amount at one load, so seventeen cases were stored at Sunset. Three cases were left at the jail as evidence, and the remainder was taken to Mr. Lowe's ranch.

LONDON GROCER.

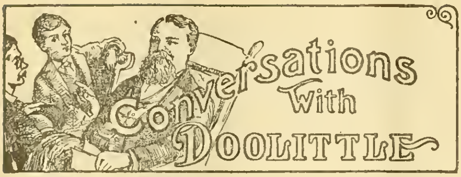
I find the following in the *London Grocer* for Sept. 19. Coming, as it does, from so good an authority, it will be found of interest to all bee-keepers in this country:

> Reports reach us from Scotland as to the prospects of a poor honey harvest there this season. For the second year in succession Scotch bee-hands have to be content with a crop which will reach only about one-half that of ordinary seasons, owing to an abnormally cold and backward spring being followed by an equally adverse early summer. At Ayrshire, a town famed for the indstrious bees, the outturn of honey will once more be very limited. Various other parts of the west of Scotland report that the produce of honey will be short. Comb honey of good quality is scarce, and those who possess such ask for a further increase in prices from those of a year ago. Pressed heather honey in bulk and in bottles will no doubt be more plentiful; but with the failure of the crop of 1902 the price of this article will have an upward tendency, so that we are safe in assuring those members of the trade who deal in this article that there will be a very restricted supply this season. In the south of England the honey harvest is over, and reports state that the crop is no better, and the quality not quite so good as last year.
>
> At the London market recently, 78 packages of Jamaica honey were sold at $5.33 per 100 lbs. Chemists are now retailing honey at 32 cts., per lb. against the grocer at 21 cts. for the same quality. Honey is an article which meets with a ready sale in the grocers' and oil-men's business, more especially during the winter months. We presume the Pharmaceutical Society will not deem the grocer a trespasser on the preserves of the chemists by the sale of honey, simply because chemists use honey largely in making up their remedies for the cure of winter colds. They have for many years encroached upon the tea-dealer's trade by selling tea, upon which they make a large profit Why, then, should not the grocers push the sale of an article within their legitimate trade which is as justly renowned for its value as pleasant to take?

The above indicates that honey sells at a higher price there than here. The reader will also note the absence of any reference to American honey, owing to the idea current in England that our honey is adulterated as soon as it leaves the hive. While the English trade has been imposed on, no doubt, by unscrupulous venders on this side, the purchase of the best honey in the world can be more easily effected here than anywhere else.

BEE KEEPERS' REVIEW.

Mr. Hutchinson has devoted a large part of the October issue to California as a honey State. It is superbly illustrated with photos taken by Mr. H himself, and the description is from his own pencil as he saw things there. It presents the bright and the dark side of California life in the apiary in a way never before attempted.



Conversations with Doolittle

ABOUT DRONE COMB.

"Good morning, Mr. Doolittle. I have come over to have a little out-of-season talk with you. It is like this: I have been trying all summer to get over here, but I have been so busy that I could not get here till now."

"Well, Mr. Smith, the old saying is, 'better late than never,' so perhaps we can talk on an out-of-season topic to advantage at this time. What was it you wished to talk about?"

"Can you tell me why my bees built so much drone comb last summer? In hiving my swarms I gave them one or two combs already built, by way of a starting at housekeeping with them, and I find now, in getting them ready for winter, that fully half the comb they built was drone comb. Can you tell me how I can prevent this in the future?"

"Yes, it is easily told. Put in full frames of nice worker comb, filling the hive full of these; or fill every frame set in any hive full of foundation. See how easy it is?"

"Y-e-s. But I have not got the worker comb, nor do I feel like spending so much money for foundation. What I want to know is how to make the bees build worker comb. Can't you tell me something about how comb-building is conducted, so that we may find some solution to this difficulty?"

"Perhaps so. All observing apiarists know that, as the day of swarming draws near, the queen ceases her prolificness so as to be able to fly and go with the swarm. Otherwise she could not; for if a queen is taken from a colony when she is most prolific in egg-laying she can not fly at all."

"Is that so? This is something new to me, as I have been keeping bees only two seasons. Then the reason she lays so few eggs just before the swarm issues is that she may be able to fly with the swarm?"

"This is one of the reasons; and another is that she need not be inconvenienced with an over-accumulation of eggs on arriving at their new home before any comb can be built; for it takes some time for the bees to get started in a new home when they enter some home not provided for them by men. And so we find that all queens do not become fully prolific again, after swarming, till they have been in their new home some three or four days. During this time comb is being built quite rapidly where honey is coming in plentifully from the fields, and under such conditions the bees build comb faster than the queen occupies it with eggs; but where honey comes in slowly the queen is able to keep up with the comb-building by depositing an egg in each cell as built."

"But what has this to do with the matter of drone comb?"

"When, for any reason, the queen does not occupy the cells with eggs as they are built, and honey is coming in plentifully from the fields, the bees, to economize, commence to build store comb, which is of the drone size of cells, and is mainly filled with honey the first season, so that the trouble from this store comb does not usually come till the next spring, when, being emptied of the honey, it is used to rear drones in."

"I think I begin to see now, for honey was coming in rapidly at the time these swarms were filling their hives."

"Yes, undoubtedly. But let me go a little further: If, in addition to the above, we give the swarm a frame or two of comb at time of hiving, as you say you did, we make matters doubly worse, in that we furnish a place for the queen to deposit nearly all the eggs she would naturally lay during the first week after hiving, consequently nearly all the comb built by the bees during this time will be for store comb, or of the drone size of cell, as you furnished for the queen all the room in which to lay that she needed."

"That looks reasonable to me now; but I never thought but that I was doing the right thing when I gave the two combs. This helps me much; but, if you have no objections, tell me how you manage in this matter."

"The swarm is hived in a hive of the same size as the one it came from, the same being full of empty frames, each having only a starter of comb foundation in it, the same being about half an inch wide. They are left thus for a day or two till a little start is made at comb-building. At this time half of the frames are taken out, leaving those having the most comb built in them, and the hive contracted to a size to suit the frames left by means of dummies or division-boards, and at the same time putting on the sections, some of which have combs for baits in them."

"What is the object of this?"

"Preparing the hive in this way gives the bees plenty of room above to store honey, thus not crowding them in the brood-chamber, so that only comb of the worker size is built below, and that only as fast as the prolificness of the queen demands it. As her ability to lay increases, more comb is built; so that at the end of the season I have the hive filled with nice worker comb and a good supply of honey in the sections."

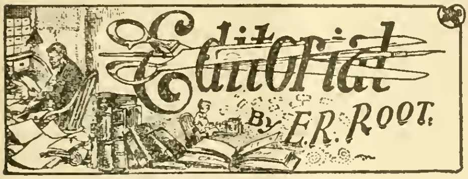
"But is there not considerable work to this?"

"Yes, some work, and so there is to any thing well done. By the above plan three important items are secured—lots of section honey, no drone comb, and a hive full of nice straight worker comb; and as these latter will, with careful usage, last nearly or quite a lifetime, it well pays to spend a little time on them while they are being built."

"But are you not troubled by the queen going up into the sections and laying there, when you work as you have been telling?"

"I used to be before the advent of thin foundation for sections, for then we had to rely on comb built in the sections by the bees, which was of the drone size of cells more often than otherwise; and if the bees wanted to rear drones for any reason, the queen would go up into the sections and lay in the drone comb there. But if each section is filled with thin worker foundation, as it should be, there is no incentive for the queen to go into the sections from any drone comb in them. But if you have fears of the queen going above, a queen-excluding honey-board will prevent her doing so entirely."

"I see the matter much differently than when I came, and shall try to profit from what I have learned. Good day."



MAKE sure that your colonies have plenty of winter stores for their long winter's sleep.

WHEN SHALL WE PUT THE BEES IN CELLAR?

EVERY thing will depend on the locality and the winter—at least the fore part of it; in Northern Ohio, somewhere about the last of November; but if the weather is warm, don't put the bees in till it turns quite cold with the probability that it it will stay so.

CONTRACTING ENTRANCES.

IN a few weeks now it will be well to contract the entrances of all *outdoor*-wintered colonies to not larger than ⅜×8 inches. If the colony is of only medium strength, the entrance should be smaller still—say ⅜×4. *Indoor*-wintered colonies, on the other hand, should have all the entrance that can be given them; and some go even so far as to leave the hives off the hive-bottoms entirely, leaving the whole bottom open, resting on blocks two inches high.

NOT A CANDIDATE FOR RE-ELECTION.

As my term of director of the National Bee-keepers' Association expires with the present year, I desire to announce that I will not be a candidate for re-election. This action is not based on any dissatisfaction on my part with the Association or with its management, but because my regular duties, which are growing heavier, require me to give up some of my outside work. There is excellent timber in the Association; it is in a flourishing condition, and I can consistently refuse to run, because there are other men more capable and more efficient to take my place. Such an announcement as this would not be necessary save for the fact that it has been the almost universal rule of the membership to re-elect the old directors. To forestall such possible action in my case, I deem it but proper to make this statement now.—E. R. ROOT.

KEEPING HONEY LIQUID INDEFINITELY UNDER ALL CONDITIONS.

IN our issue for Sept. 15, when I spoke of the Boardman honey that had kept liquid outdoors on the window-shelf clear through the winter, notwithstanding we had quite a number of zero days, I had forgotten the fact that that honey was already a year old when I received it. We will let Mr. B. speak for himself:

> *Mr. Root:*—You mention on page 793 my sample of honey that would not grain; but you overlooked the important fact that it had been put up one year when I sent it to you, which gives it a test of two seasons. I am very confident — yes, sure — that I can do what I claim — put up honey that will remain liquid indefinitely—not almost, but quite, and in any temperature.
>
> East Townsend, O., Sept. 25. H. R. BOARDMAN.

If Mr. Boardman can keep his honey liquid indefinitely under all conditions he is to be congratulated.

THE AMERICAN LUMBERMAN ON THE SUPPLY OF BASSWOOD.

THE following item from the *American Lumberman* of Aug. 29, 1903, probably the best authority on the subject of lumber in the United States, will explain itself:

> The supply of basswood is short, and inquiry is consequently urgent. It looks as if consumers will have to turn to some other variety of lumber to offset the demand for basswood.

Ten years hence, I suppose all supply manufacturers will be looking for some other material for making sections; and it is possible we shall be making the four-piece, unless some of the cottonwoods that grow so rapidly in the West can be used as a substitute. Basswood is a rapid grower; but the small trees over the country are not beginning to keep pace in growth with the demand for this valuable timber.

A FOUL-BROOD BILL FOR OHIO.

I SHOULD be glad to hear from any of the bee-keepers of Ohio who will be willing to turn in and give a lifting hand in helping to get through our legislature this winter a foul-brood law. The old Ohio State Bee-keepers' Association will be resurrected, and will probably hold a joint meeting with the Hamilton Co. Bee-keepers' Association (the most flourishing organization of its kind in Ohio), to consider at once the drafting of a bill to be presented at the next general assembly. It is high time we were up and doing. The bee-keepers of Hamilton County are deeply in earnest, and they should be given loyal and helpful support by their brethren in the craft from all over the State. Announcements later.

JUST IN TIME—THE DEWITTS AGAIN

Since our special notice that we published on page 820, Sept. 15, we have heard of quite a number of others who have claims on the Dewitts, which claims will probably never be paid. But, apparently, the Dewitts are endeavoring to get more goods on credit, even at this late date, and we think it is only proper that our readers be cautioned again, as the following will show:

> *Mr Root:*—Your notice in regard to the Dewitts, page 820, Gleanings, Sept. 15, saved me $12.60. They sent me a local check for that amount, and I had started the goods for the freight-house when I espied what you had to say; and, fearing trouble, I telephoned the freight-house to hold the goods until I heard from the check. I learned to my sorrow that the check went to protest, and I had nearly $2 00 to pay for the same. C. L. Parker.
>
> Syracuse, N. Y., Oct. 7.

"MACHINE-MADE QUEENS" BY THE PECK.

We have shown our readers quite a number of finely built cells built off from prepared cell cups. Mr. Arthur Stanley, of Dixon, Ill., has sent us a photograph of a nice lot built off from his gun-wads, and which I reproduce on page 883. These gun-wads are slipped into Stanley circular cages made of perforated zinc. (See May 15 Gleanings, page 446, for further particulars.) The cages are then kept in the hive until the virgins hatch out, when they are given to nuclei or queenless colonies.

The art of raising queen-cells by the peck is an easy one; but getting virgins fertilized by the peck is another proposition altogether. Some one asked me a short time ago how much it was worth to get a queen *ready* for fertilization, and how much to get her fertilized. For even figures we will say a laying queen is worth $1.00. I should say it was well worth $66\frac{2}{3}$ cents—yes, and I am not sure but it would be worth 75 cents, to get her fertilized. I think I would rather offer virgins at 35 cents than laying queens at $1.00. Stanley, Swarthmore, Pridgen, and last, but not least, Doolittle, have done much to simplify the method of raising queens up to the age of fertilizing. These methods not only cheapen queens, but give us a better grade all through.

Some have objected, thinking that such methods produce "machine-made queens," and that, therefore, they can not be as good. If the queens are inferior, that inferiority is due to the *man* and not to the *method*.

"LIGHTNING OPERATORS;" BUCKWHEAT HONEY.

Some time ago Mr. R. A. Burnett, the commission man of Chicago, in referring to unripe honey having been put on the Chicago market, spoke somewhat disparagingly of certain buckwheat honey that was put up by so-called "lightning" operators, saying of New York that it was unripe, and unfit to put on the market. This reference caught the eye of Mr. W. L. Coggshall, in whose apiaries the word "lightning operator" or operators originated. One might possibly suppose that the Coggshall honey was referred to; but, as Mr. Coggshall said, he had not sent any honey to Mr. Burnett for a good many years, and that what he did send at the time was pronounced first quality. Since this disclaimer, the term "lightning operator" might narrow down to Mr. Harry Howe, who was the chief of the lightning operators, at least he feels that his friends might so construe it.

Mr. Howe, who is managing 500 colonies for the Root Co., in Cuba, writes that he did send some honey to Mr. Burnett in 1896, but there was only 3580 lbs. of it, all of which was extracted from sealed combs; and that Mr. Burnett, in acknowledging the receipt of it, called it good honey, and said that the same arrived in good condition.

THE DUAL PLAN OF INTRODUCING VIRGINS; WHO FIRST DISCOVERED IT?

After I wrote up this method for Gleanings, and A. I. R. had read the whole plan, he came to me and said, "Why, I had that very plan once, and I wrote it up in the journal at the time."

"Well," said I, "suppose you find it."

He immediately began fumbling over some thirty volumes of Gleanings. Talk about a needle in a haystack! Well, he did not find the needle. But he insisted that he had that "very idea," but that it did not prove to be a success with him. The other day, as I was looking over our A B C book I ran across a paragraph which he wrote in 1877, which I suppose I have read scores of times during my various revisions, but had forgotten it. Under the heading of "Queens," after speaking of the fact that the young virgin never takes a rest during the first week of her life, but is constantly on the move, he says:

> This is one reason why I am averse to caging young queens. in order that we may allow several to hatch in the same hive. It seems to be natural for them to run about, and I believe it is necessary for their well-being. Several years ago I thought I had made a brilliant discovery when I succeeded in hatching all the queen-cells in the hive, under cups made of wire cloth. The first hatched was allowed to run until she became fertile, and began laying; she was then removed and the next released, and so on. I think I succeeded in getting four laying queens from the single lot of cells, all in the one hive, but the bees made such desperate efforts to get the obnoxious cages out of the way, and the inmates of the cages to get out, that I gave up the plan, after seeing several fine queens die of nothing else, so far as I could see, than confinement.

Yesterday I read this to A. I. R.; and as I concluded he said, "There, I told you so."

"But," I said, laughingly, "you did not know a good thing when you had it. You concluded that the bees were making desperate efforts to get the 'obnoxious cages' out of the way. While I will admit they are foreign to their hive architecture, experience in late years, and during this past summer in our bee-yard, has shown that bees endure what they can not help, and that the young virgins are fertilized and laying in approximately four or five days as against eight or ten the old way."

"But I still think it will not work *all* the time," he said.

"But," I replied, "it *has* been working successfully for us this whole blessed summer—before the honey-flow, during it, and after it."

TRUSTING NEW OR UNTRIED COMMISSION MEN WITHOUT CASH IN ADVANCE.

ONE H. G. Holloway, advertising himself as doing business at No. 1 Vine St., Philadelphia, is apparently soliciting consignments of honey from bee-keepers in various parts of the country. He asks for small shipments as samples, by express, stating that he will remit for the same on arrival. If the goods are satisfactory, there is an intimation that he will place a large order. The letters are neatly written in typewriter, on elaborately printed stationery, having every appearance of an old established house doing a commission business. The manager of our Philadelphia branch, at 10 Vine St., only a few steps away, called, at our request, at No. 1, and informs us that Mr. H. has only a little room at No. 1 Vine St., with nothing in it.

We advise no shipments of honey, either large or small, without cash in advance, to any new man, without good references. The party above named is not mentioned at all in one of the commercial directories, and he is rated as —— —— in the other. But, as we have said before, no new commission merchant should be entrusted with your property unless you get your money in advance. We have reiterated this so many times that it seems almost like cant for us to keep on repeating it. If you desire to know about the responsibility of any commission house, write us and we will tell you whether it is safe to trust such party or not. But don't—*don't*—put your hard earnings into the hands of a stranger, no matter how "highfalutin" his letters may look or sound.

Later.—We learn that this Mr. Holloway, in soliciting a consignment of honey, wrote to one of our bee-keeping friends, saying that *we* had referred him (Holloway) to this bee-keeper for honey. This was absolutely false; but our unsuspecting friend, supposing this to be true, sent on his honey, but now wishes he had written us first. A word to the wise will be sufficient.

FORMALDEHYDE AS TESTED BY MR. C. H. W. WEBER FOR THE DISINFECTION OF COMBS.

AFTER receiving some unfavorable reports regarding the new drug treatment, I wrote Mr. Weber, asking him if he had had any experience going to show that the treatment failed to cure in some instances. He wrote that he had, and said he would send me a report for publication. This he has done, and I take pleasure in presenting it to our readers:

> In treating foul-brood colonies with formaline gas it has transpired that, after a seemingly sufficient fumigation, in some instances the disease had made its reappearance. Regarding this I beg leave to offer the following explanation and reasons:
>
> When taking a foul-broody frame out of an affected colony, we notice upon examination that the dead larva lies on the lower side of the cell. In order to learn how the same progressed, return the frame to the colony. After eight or ten days, taking the same out again, we notice that the dead larva has been changed into a ropy, gluey matter, and still resting on the lower side of the cell. After some length of time we notice that this ropy or slimy matter has nearly all dried up; in fact, after a first examination it appears that every thing has disappeared; the comb seems to be in good condition; but, after closely examining the same by holding the comb so the light penetrates the cell, you will observe that the lower part of the cell appears as if coated with a brown tinge, which is nothing but the aforesaid slimy matter. When dried up, if any thing else should extend from the coating the bees will clean it away. As this slimy matter has dried up and become as hard as the wax from which the cells are constructed, the question arises, "What has become of the foul-brood germs which were in this gluey matter?" To this I offer the following solution:
>
> After this matter has dried up, the germs on the surface, being readily exposed to the fumes of formaldehyde, have been easily killed; while those beneath the surface, or protected by this hard matter, have not been killed, and, with the advent of hot weather, soon make their reappearance. This proves that formaline gas will kill the germs it comes in contact with. It has also been proven that honey-combs in infected hives never used for brood-rearing, when well extracted of honey, and then strongly fumigated, and given to new healthy swarms, did not show any signs of the disease during the fall, spring, or summer. To hatch bees it takes a temperature of about 98 or 100 degrees. It seems that this heat does not affect the dried-up matter, as the trials that I made last year from the end of August, during September and October, did not show up any signs of foul brood in the early part of spring, until the extremely hot weather set in, which seemed to melt this dried-up matter, exposing the germs, and, consequently, bringing on a reaction of the disease. This has been experienced by nearly every one who has experimented with formaldehyde; and I therefore recommend the destruction of brood-combs wherein any larva died and kept lying as described before, and saving only such combs as showed no disease whatever; also the honey-combs by fumigating the same strongly with formaldehyde.

Foul-brood matter, whether dried up or whether in a semi-liquid gelatinous condition, is always dangerous. While we may assume that the fumes of this drug, if they can reach the actual microbes, will kill them, yet it is apparent that, if they are covered with wax or honey, or any enveloping material, they will be protected; and as soon as the protection or covering is removed, the active principle will develop, bringing out the disease as before. I should somewhat question whether it would be safe to rely on fumigation for disinfecting combs filled with honey. If the combs were extracted, and then fumigated after being cleaned by the bees, I should presume the treatment would disinfect them. I should suppose, also, that a good fumigation of actually diseased combs would check the disease. But my impression is that, till we know more about it, it would be safer to burn or melt all diseased combs, fumigating all empty ones — empty of brood and honey. If the formaldehyde will do no more it will then save a large loss, and at the same time be putting up an additional safeguard against the reappearance of the disease.

DUAL HIVE-STANDS.

EVER since Mr. J. S. Callbreath, of Rock Rift, N. Y., showed his double hive-stand in GLEANINGS I have been wondering if it were not a pretty good thing; and when Mr. Danzenbaker visited us a short time ago he remarked, with some emphasis, "The Callbreath article with illustrations which you published in July 15th GLEANINGS was one of the best things you have ever given to the public." Since then we have been figuring on various forms of hive-stands for our own use, as we think enough of the principle to give it at least a reasonable test in one of our outyards another season. We therefore constructed two different patterns — one made up of simple posts and frame, as shown in the smaller illustrations, and another on a plan devised by Mr. Danzenbaker, as shown on p. 885. I argued with him that the first mentioned was simpler and cheaper, and just as serviceable. But he finally convinced me that his stand could be made shorter, and that the posts could be sawn out of three-inch plank, the same as our old chaff hive posts were made of, in the shape of a letter V. Double and cross nailing with cap or water-table boards laid flatwise on top of the frame would make a stronger stand — one that would not need to be so long as the other for the same number of hives, because the cap boards could project over on each end, and rest on the posts.

On page 886 the two stands are shown, for each one to decide for himself which is the better.

Now, the question arises, "Is the double stand as good as one that will accommodate only one hive?" Dr. C. C. Miller and many other prominent bee-keepers all over the United States have used for years a double stand; but the Miller was made of boards and 2×4's, the same lying very close to the ground. But Mr. Callbreath suggested the convenience of having a stand high enough so that the operator could practice shaking or brushing swarms, uniting, and doing the thousand and one other things done where hives are set in pairs, without any back-breaking work. Such a stand permits the toes or insteps to stick under far enough to allow the thighs to abut up against the hives, forming a brace to the body while lifting heavy combs out of the hive or putting them in.

As Dr. Miller has said, the bees of one stand will not make the mistake of going into the next entrance on the same stand, although the bees of one hive may, by mistake, enter the corresponding hive in the pair next adjoining. If, however, one arranges to have three hives on one stand, two on another, and perhaps one on still another, this confusion would be entirely overcome. If, further, one stand is under or near a tree, another is backed up by a low bush, another facing a lot of weeds, another near a building, and so on through the apiary, even queen-rearing work could go on, and young queens will always find their regular entrances.

The hive stands illustrated are one foot high, and will accommodate two hives placed a little way apart, or three hives placed close together, the two end-hives in this case projecting a little over the end of the stand.

The legs can be set down on the ground anywhere, and all that is required is to level up for the one leg that is either too high or too low.

Now, what are the objections to these stands up on legs? One is that clipped queens might get lost down under the hives in the grass, being unable to fly up on the entrance-boards; but if the swarm is in the air it would be a very easy matter to find the queen, because, instead of running into some hive, she would be in the grass, accompanied by the usual characteristic ball of bees.

Another objection is that, during the height of the honey-flow, heavily laden bees may *just miss* the entrance-board, and then it is necessary for them to take wing again before they can get into the hives. This is a more serious objection in spring; for if the bee does not make the entrance the first time it will probably fall down on the ground, and chill, with the result that there will be spring dwindling in the hive if bad weather continues long. Mr. Callbreath overcomes this objection by running a board from the ground up to the alighting board; but here is quite an expense. We overcome it to a great extent by making a very wide alighting-board—say six inches wide. If the entrance is made large an inch deep or more by the depth of the hive, 99 bees out of 100 will fly through the entrance and strike the bees hanging down under the frames. The hundredth one would strike on the alighting-board. If the hives are raised off the ground, the alighting-board must be ample in size — that is sure.

In our 1904 model of hives the alighting-boards are six inches wide and detachable. When turned one side up, the entrance is contracted down to ¼ inch deep by 8 inches wide. When turned the other side up, the entrance is 1⅜ in. deep by the width of the hive. Or if the alighting-board is pulled out entirely, and it is slipped under the hive in the case of a newly hived swarm, the entrance will be 1½ deep by the width of the hive. So much for alighting-boards for overcoming one difficulty.

But there is still another objection, and one that is of far greater weight in hot countries than in the North. We will say one colony is being robbed badly. It is often desirable to set a bee-tent over such a colony to protect it in the mean time. How would I overcome this objection? Why, set the bee-tent over both hives, or put the robbed colony down cellar till we get a chance to contract the entrance, and the robbers have eased up.

I should like to hear from some of our subscribers who have tried these hive-stands up on stilts, we will say. As I go through the country I find all sorts of supports for the hive; and I have seen not a few of the pattern I have shown in this issue.

GENERAL CORRESPONDENCE.

SMOKERS AND EXTRACTORS.

Hinging Smokers; the Crane Valve; Double-pocket Reversible Extractors; High Speed in Extracting; Wiring Frames; Getting a Swarm out of Elevated Position without Climbing.

BY ADRIAN GETAZ.

In answer to a request made some time ago in these columns I will give a little of my experience with smokers.

In the first place, I decidedly object to breech-loading. I want the fresh fuel on top of the other, and a wad of grass or wet shavings in the nozzle, so as to arrest the sparks and cool the smoke. In breech-loading, the first charge would fulfill these conditions; but in the subsequent reloading, the fuel already half burned will be pushed toward and into the nozzle. Until your attention is called to it, and until you observe closely, you have no idea how many bees are injured and maimed by the hot burning smoke. I do not want any so-called cold blast, or any admittance of air with the smoke, as it impairs its efficacy, and cools it but very little after all.

I have had trouble with all my smokers from the hinged tops flying back instead of remaining closed. At last I filed the hinge some, and put in a thin wire in place of the split pin. This gave sufficient play at the hinge to permit the nozzle to settle well on the fire-barrel.

Some four years ago I bought two Crane smokers. One is in use yet; the other is worn out—that is, the fire-barrel is. I bought another last fall, but it is not so good. There is too much space between the valve and the air-passage to the fire-barrel. The two first ones closed pretty tight, as shown at 2.

The last I bought has the air-passage flaring like 3, and there is too much air lost between the valve and the air-passage. I presume the defect is accidental, and due to some carelessness of the workmen. I have remedied it.

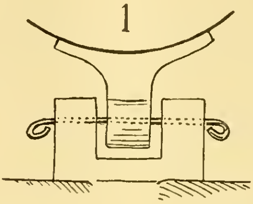
I note that complaints have been made that the Crane valve does not work well soon after the smoker has been in use. I had the same trouble. A thorough cleaning of the accumulated creosote did not mend the matter much, so I concluded that the trouble must be somewhere else. I soon discovered that the valve was too tight in the hole of the bellows. It was easy to fix the thing right, and that ended the trouble. The creosote does not accumulate in sufficient quantity to cause trouble. The movement of the valve prevents this.

Now, why did the valve work well at first, and in a few weeks was too small, or, rather, too tight? This happened to both smokers.

The only answer that I can give is that, in making your smokers, you use kiln-dried lumber, and at the first damp weather such lumber swells back to its natural size.

I am impatient to see what sort of motor you will offer for sale to run an extractor. I need a motor for some other purpose; but so far I have not found any thing exactly to my fancy.

With a motor you will want an extractor taking at least ten combs at once. I would suggest putting the combs on two rows, or, rather, two circles, and a sheet of tin between the two to catch the honey from the inside row, as shown at 4.



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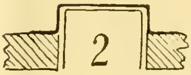

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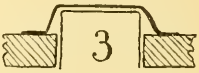

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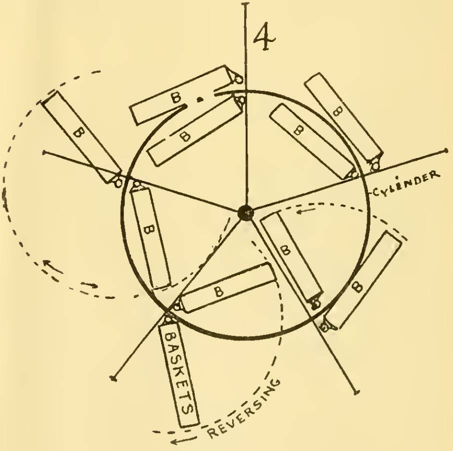

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A higher speed may also be desirable. Some of the French makers now advertise extractors geared very high, and claim that the combs can be extracted practically dry. It is necessary to extract most of the honey at a low speed first, and finish at the higher speed, otherwise the combs would be broken.

Special baskets should be made to hold sections. It is often desirable to extract the partially filled sections.

Some discussion arose in these columns on the way of putting wire in the frames.

I tried again the way you describe, but with no better success than before. What makes it still worse is that my frames, being deeper than the standard, I have to put in five or six wires. But even with four wires it does not work well.

After studying a little as to what was the matter, the idea struck me that you probably use wire from large coils, and are therefore not troubled by its kinking. We bee-keepers use altogether too small spools; and unless we manage to keep the wire stretched all the time there is no end to its twisting, kicking, flying off, and kinking.

I had a considerable amount of swarming to contend with this year. One of the swarms lodged at the end of some limbs where I could not get at them. I did not want to cut the limb and let it down. I happened to have a tin bucket with some honey in it. I tied the bucket to the end of a long pole, or, rather, two poles tied together, end to end, and managed to raise the bucket to the swarm. A little brushing or moving of the bucket sidewise soon got the bees in; and what did not fall in went in voluntarily to take part of the feast. The rest need not be described.

Some one recommended smoking a colony which is in the act of swarming, to stop the proceedings. That's all right, so far as it goes; but water is much better. If the one who watches is quick enough with his bucket of water, and any kind of brush, he will have no trouble in preventing the bees from taking wing and stopping the queen from flying, as well as the others, and, in most of the cases, be able to catch her if he wants to.

Knoxville, Tenn.

[The breech-loading feature of the Vesuvius has been dropped. This same smoker now loads from the top, but on a different principle from any heretofore employed. The fire-chamber telescopes into another chamber of the same length, but of a slightly larger diameter, so that the smoker can take long or short fuel, and, what is more, will not leak smoke except at the snout.

The Crane valve can be made to work satisfactorily with those who are careful enough to keep the working parts clear. The plan you propose would be feasible except that it would have a tendency to leak air. If this is the case, we might just as well use the Corneil-blast arrangement, which will not clog with creosote, and which, under like circumstances, would give about the same blast.

We have been experimenting with a motor-driven extractor, using a 1¼-horse-power air-cooled gasoline-engine, the same as is used in ordinary motor cycles. We can make it work; but the serious question in my mind is whether the average person unfamiliar with gasoline-engines of this type could make it go when he wanted it to. We can make the extractor hum at almost any speed desired, by moving back and forth the spark-lever which also operates the band-brake, controlling the reel of the extractor.

Before we dare to offer the outfit to the public, we deem it best to do a little more experimenting; but at the present time I am of the opinion that a bicycle-engine will not be as satisfactory as a larger one using water for cooling. The working parts are less intricate, and less liable to get out of order. A water-cooled outfit of, say, one-horse power, with an eight-frame reversible extractor, would cost about $100. The expense of coupling the two together, in such a way as to provide suitable speed, would be from $10 to $15 more.

Your plan of putting a sheet of tin between the two pockets, as proposed, would not work, if you will stop to think a minute. The tin will catch the honey thrown from the outer pocket; but when you reverse the two pockets, bringing this surface the other side to, it will throw the honey back from the tin into the next comb.

Yes, we use wire from large coils, and are never troubled by kinking.

Your scheme of getting a swarm from the top of a tree, without climbing after it, is good. Sometimes the swarm is so high that three or four poles fastened together will not reach it. Then nothing but climbing or using a shotgun will do the work.—Ed.]

SMOKING BEES, ETC.

Use and Abuse of Smoke; the Difference in Colonies; Drones as Heat-producers.

BY J. M. GIBBS.

My feelings are hurt every time I think about the way some bee-keepers smoke their bees, as well as the way some old bee-keepers advise smoking them in order to conquer them. I have observed that bees do not succumb to smoke "just for fun," but because it hurts them. I have no idea how intensely they suffer from it; but I know that the suffering is great that will drive them from their homes and "little ones" to take their chances in the open air, and this they may be made to do if enough smoke is blown on them. I find that a very little smoke (applied frequently) will conquer any colony, and that a large per cent of Italians may be handled without any smoke whatever, and that more vindictive ones may be managed with but a single "whiff" over the tops of the frames. For the sake of the dear bees I want to describe my method of smoking them.

My frames are covered with "duck," or oiled cloth, and are mostly air-tight, so that, when the hive-cover is lifted off, not a bee can be seen under it. No holes are allowed in these sheets to admit air or to allow the bees to sally out through and begin the fight before you are ready. I stand at the left-hand corner of the hive (looking from the rear), and remove the cover with my left hand. I then take hold of the cloth or sheet (covering the frames), with my left hand catching it at the extreme right-hand corner. I hold the smoker in my right hand with the nozzle close to this right-hand corner, and pull the cloth back just enough to admit a little smoke, forcing the bees down as I pull the cloth back, the object being not to let a single bee fly from the tops of the frames.

A very vicious colony may need the smoke frequently; but large volumes (in my experience) are unnecessary with any sort of disposition. I have some hybrids that require smoke every time a frame is moved; but the lightest possible blast is sufficient to keep them down. By manipulating the opening-up of the hive as I have described, it will be a rare thing for a bee to fly from the top-bars. I have never found a single good reason for smoking the entrance to the hive. My bees do not bother me from that point. I just let them work away, and they will do so if not stifled with smoke from the top. I have seen them, when not "stifled to death" with smoke, working away seemingly as if the hive had not been disturbed. Before I learned how little smoke was really necessary I demoralized my bees to some extent every time I worked with them, and the demoralization was apparent some days afterward. I prefer to "fool away" my time trying to produce a race of bees that can be "handled" without smoke, in preference to that of trying to evolve a race that will not swarm, which last-mentioned "feat" will never be performed. The non-sitting breed of hens has never been produced, yet there are breeds that are less inclined to sit than others; but there are hens, and lots of them, among these so-called non-sitters, that will sit in spite of any thing (sometimes), and they make good mothers. I happen to know from experience.

Some of our domestic animals have been domesticated for four or five hundred years, and they show habits, instincts, and dispositions to-day that their ancestors transmitted to them in the "long ago." I am persuaded that, where these instincts bear upon the propagation of the species, and the welfare of the young of the different animals, fowls, or insects, they are surely God-given, and should not be bred out. Bees swarm, mostly, for want of room at the time they need it, or at the time they think they are going to need it, and sometimes they swarm anyhow, and no one can tell why. Give them an abundance of room before they have started queen-cells, and few colonies will ever swarm. I have a neighbor who has twenty colonies in two-story ten-frame Simplicity hives. He extracts from the upper story, and sometimes in a good flow he puts supers on his best colonies. He hasn't had a swarm from those bees in three years. His bees are natives. Now, if he were to Italianize, and get some very prolific queens, some of them would fill these "double deckers," and swarm; or if he would take off that top story, and keep it off, they would swarm just for want of room.

THE VALUE OF DRONES IN A HIVE AS HEAT-PRODUCERS.

He who arrives at the conclusion that drones are worthless except as male functionaries of the hive arrives (I think) at a very unwarranted conclusion. I am fully convinced, from this season's experience, that drones pay for their keep by supporting the temperature of the inside colony, and that the bees hustle with a greater degree of energy where there are drones, especially those colonies that have drones in large numbers. I got my proof for the above in the following manner:

I bought some bees early in the spring in box hives; and when transferring them I noticed that two of the colonies had an unusual amount of drones, and drone brood which I transferred. I later discovered that these two colonies, which were working very strongly, were one-half or more (in bulk if not in numbers) drones. I was anxious to destroy these black drones, so I placed these hives over excluders on their bottom-boards, and dumped every thing on the outside. Of course, I got all of the drones that had hatched. I succeeded so well in destroying black drones in this way that I proceeded to do some more of it; and, to my astonishment, I demoralized some of my strongest colonies. Some of them were at work in the supers, and immediately left off, while three of the strongest drone colonies (to my knowledge) have never recovered their former energy. I observed, too, that these colonies did not swarm. I am persuaded that, by destroying the drones, I reduced the temperature probably enough to chill the brood, or at least enough to make it necessary for a large number of the field bees to abandon their work and take care of the indoor work, especially to keep up the temperature. I have seen drones lining up with the workers to raise the temperature when building comb. To say the least about them, sober "men folks" about the house are usually a great consolation to the female portion of the family, even if they are not very industrious.

I honestly believe that bees know more about some things than I know. It might prove that, for queens to do their best, it is necessary for them to lay drone eggs; at least they may have their own way about drones until I see further, so far as restricting the rearing of drones by the Italians is concerned.

Statesville, N. C.

[I do not remember that any one has, in our columns at least, recommended smoking a colony needlessly. Beginners, however, will very often use too much smoke because they are not able to determine when the bees are subdued or peaceably inclined. It is my rule to use very little smoke except in the case of a very cross colony, and even then I seldom blow any in at the entrance.

One or two whiffs blown over the tops of the frames—not down between the combs, is quite sufficient for the average Italian colony. A great many bee-keepers do not use a quilt; and when a cover-sealing is broken, the bees at the top may resent the intrusion, and it is well then to give them notice that they had better stand back. Nor is it necessary to blow their eyes out to do it. Smoke properly used with proper management will not harm in the least any bees. But I sometimes think the practice of smoking bees out of comb-honey supers, blowing quantities of it down through the super, is carried to the extent of cruelty; and if an agent of the Humane Society were present he might cause a stay of proceedings, and rightly too. The modern escape will do away with a great amount of smoking; but there are times and circumstances when one is in a hurry at an outyard, when more smoke can be used—enough to drive, but not enough to cause excessive pain to our poor little friends. Coggshall's method of snuffing smoke down into the brood-nest with a quilt, a very little of it, I am sure, would never cause any pain, and yet would save a good deal of time.

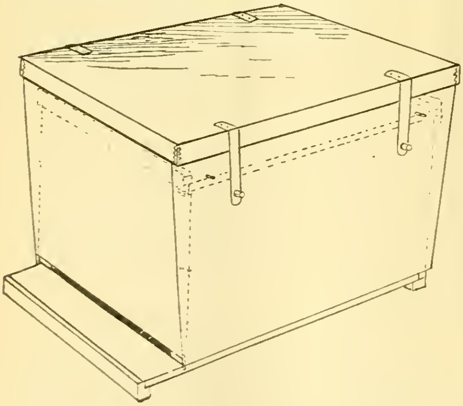
Regarding the value of drones as heat-producers, there are some who would take issue with you, notably C. P. Dadant. See page 872.—Ed.]

WINTER HIVE PROTECTION.

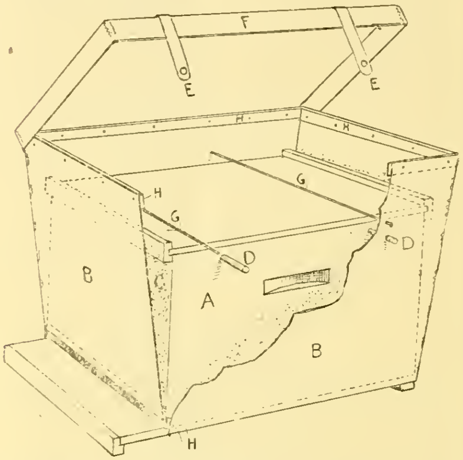
Winter-cases of Strawboard; is the Plan Feasible?

BY D. B. THOMAS.

From this latitude, north, we need some outside protection for our bees in winter; yet few use any thing—mainly, I think, because of the relatively high first cost, then the later bother of storage. I don't see any way of remedying either evil so long as we depend upon wooden cases. But why depend upon wood when thick cardboard is so cheap, light, and strong? The cases could be made to fit too close for the packing material (cut straw) to run out at the bottom, and about two inches larger at the top. The corners might be fastened with tin — the kind with edges like saw-teeth, which go through the board and clinch. Made in this way, almost any number might be nested and shipped in a small crate. Also the economy in storage and handling is at once apparent. The objection might be raised that the sides would spring out when the packing material was put in; but I think that could be nearly obviated by packing the corners first and doing it pretty tight, then filling the middle not quite so tight.



D. B. THOMAS' STRAWBOARD WINTER-CASE.



THOMAS' STRAWBOARD WINTER-CASE DISSECTED.

The covers could be made like ordinary box-covers, with the rims flaring, so they too would nest. They would fasten on with small inexpensive tin fastenings; and a small wire at each end of the case, fastened to these same tins, would prevent the cases from slipping down too far over the hive. Two coats of good paint on the outside would complete the job, and make a light, inexpensive, wind-proof, weather-proof winter-case, twenty of which could be packed in the space ordinarily required by two.

Odin, Mo., July 23.

[Although lumber is very high, and getting higher in price, it is my impression that a winter-case made of ⅜ boards would be still cheaper than one made of strawboard, unless the material were used so thin as to be unsuited for the purpose. A strawboard case as here illustrated ought not to be made of material less than ⅛ thick, and $\frac{3}{16}$ would be better. If properly painted and carefully handled, both when putting on in the fall and taking off in the spring, it ought to last a good while, and give good service. The time may come when we shall *have* to use strawboard or some material which can be grown inside of a year.—Ed.]

Heads of Grain from different fields

VENTILATION BETTER THAN SHADE; RAISING HIVE-COVERS INSTEAD OF SHADING HIVES.

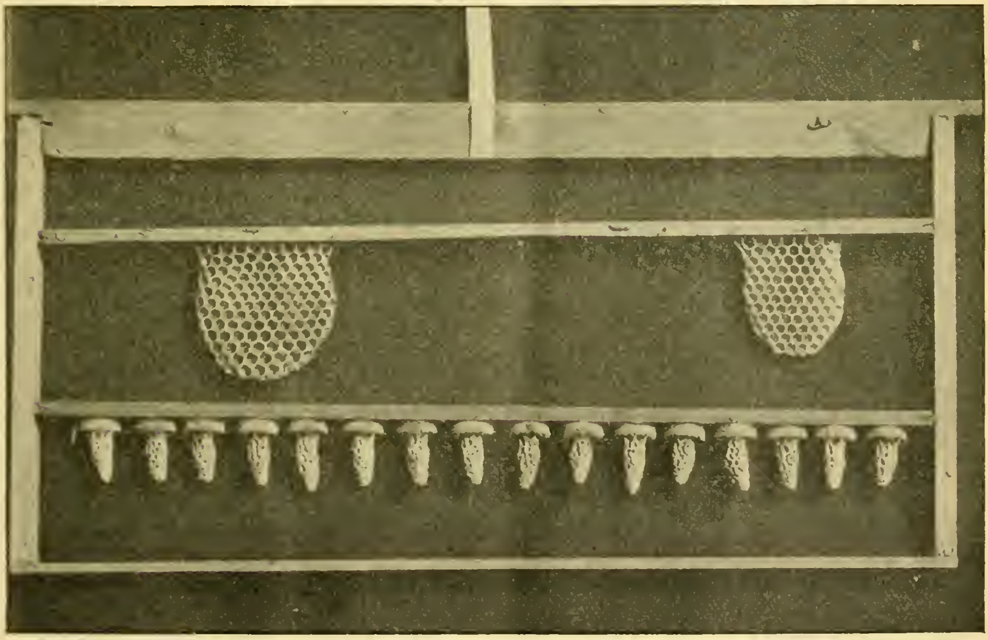
Much has been said of late regarding the advantage of sheds and shade-boards for bees. I find no use for either. To me, shade-boards with rocks to keep them in place are most unsightly unless they are of uniform size and neatness, besides the extra tons of lifting one has to endure all through a honey season.

As to sheds such as I see pictured in GLEANINGS, it would completely rob my bee-yard of all its attractiveness. Experience with my apiary of 153 colonies, spring count, now 204, from which I have extracted over 12 tons of honey, has demonstrated to me that my bees need neither shade-boards nor sheds. Early in June we had a hot day. My bees clustered outside their hives. I discovered several combs melting down. I did what I have practiced other years. I hurried through the apiary, and in a few minutes had every cover lifted, and resting on its cleat. In this condition they have been and will remain until the end of September, when cooler weather prevails. During extracting, the heat often reached from 105 to 115°, much to the discomfort of the apiarist; but apparently it was just to the liking of the bees. Who wants sheds or shade-boards if this method is practical? JOHN BOWEN.

Calabasas, Cal., Aug. 28.

[Ventilating at the top has been advocated before; and in some localities, where the temperature runs above 100, the practice is a very good substitute for shade-boards and sheds. Indeed, I am not sure but it is even better; but it would not answer in localities where the temperature is below 100, for it is very seldom that supers will be too warm for comb-building (especially for fancy well-filled comb honey), and particularly at night: and I should question whether top ventilation would work in some of the deep canyons of California. In the one where M. H. Mendleson is located I remember the nights were quite cool, and a thick woolen blanket over us at night was very comfortable.

For the production of comb honey I should somewhat question whether top ventilation in *any* locality would be desirable. In Arizona, for example, bee-keepers run very largely for comb honey. Comb-building, to progress satisfactorily, should have a warm tight super. If it gets too hot, and the entrances be sufficiently large, the bees will cool the hive by fanning at the entrance, a cold-air current going in and a warm one coming out. I should be glad to hear from bee-keepers in various portions of California, Arizona, and other parts of our country where the temperature runs up to 100 or more.—ED.]



STANLEY QUEEN-CELLS REARED ON STANLEY GUN-WADS; SEE MAY 15TH GLEANINGS.

INTRODUCING TWO VIRGINS AT A TIME; SMOKER FUEL OF OLD SACKING.

Mr. Root:—I am quite interested in your experiments in introducing two virgins at one time. Some fourteen years ago I did the same thing in another way, using the cage illustrated on page 220 of the A B C book. In this way a hatching cell was placed on a piece of comb having hatching brood and some honey, and covered with the cage. Some days after the virgin was hatched, the old queen was caged in a similar manner (if not wanted otherwise), the young virgin released, and another cell treated as the first. On very old comb it worked like a charm; but as that was not always obtainable in just the right condition I thought about getting some foundation made with a wooden midrib. However, just afterward I went out of the queen-rearing business, and have not tried it since then.

I wish you would try for a week my smoker fuel, and do it this way: Take an old sack, and with a hatchet or knife cut it in strips three inches wide, then roll it tightly around a tapering stick one-half inch at the small end until the roll is large enough to fit the smoker tightly. A few hot coals will light it the first time, or it can be easily lighted with a match and a few shavings. After the first lighting in the morning I scarcely ever have to light the smoker again all day. Simply put in another wad on the old coals, often driving from the home yard to one of the out-apiaries, and finding the smoker ready for use without relighting or recharging.

Please note that I used wire cloth, not perforated queen-excluder, as I find the same trouble with it that you do.

H. Fitz Hart.

Wetumpka, Ala., Sept. 5.

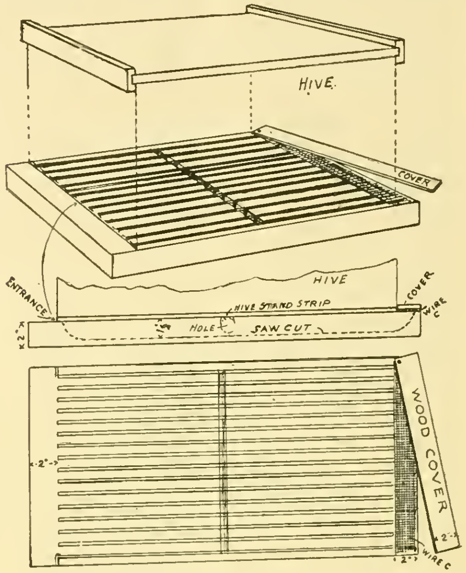
[Our plan of introducing two virgins at a time seems to work under all conditions—before the honey-flow, during it, and after it. Experience has shown that a method that works satisfactorily during a honey-flow may be any thing but a success before or after.

Your smoker fuel, I believe, is all right. Mr. W. L. Coggshall has a plan that is quite similar, except that he rolls the sacking into a long roll. When of sufficient diameter to fill the smoker nicely, he chops it up into suitable lengths after it has been tied with strings. A few live coals dropped on to the grate will readily ignite a bundle of this sacking, and will give a pungent and lasting smoke, says Mr. Coggshall.—Ed.]

LEACH'S BOTTOM-BOARD FEEDER.

Being a bee-man (on the side) for some years, I have constructed a feeder of my own make, and used it for the last two or three years. It gives me perfect satisfaction, and a proper one to my notion, to be used at all seasons of the year. I call it a bottom-board feeder.

This is made of pine plank, 2 in. thick, with saw-cuts made a bee-space apart, and 2 in. from front end, and ½ inch from the back end. The feed is poured in at the back of the hive, where wire screen is used to prevent bees from getting out. This is also covered with a strip of wood to shed water. There is no robbing, and a small or large quantity of feed can be given at a time. My bees have taken up 10 lbs. in one night.



I notice an item in July 1st Gleanings about feeding from the bottom. It is the proper way when you have the proper fixture to do it with. I use loose bottoms with staples so they can be easily removed, and I can feed from ¼ lb. to 15 lbs. at once.

L. T. Leach.

Orillia, Ont., Canada, July 10.

[So far as feeding bees is concerned, with a bottom-board such as you describe, the plan could be successfully employed; but the expense of it—ah! there's the rub. The two-inch plank grooved out as shown in your drawing will be as expensive, almost, as all the rest of the hive; and, besides, it would check so badly after using it a season or two that it would be utterly worthless. It is well to bear in mind that an improvement or invention must not be too expensive or it will never come into general use. A good many bee-keepers, however, tilt up the hive and pour syrup in at the entrance. The ordinary bottom-board, after it is propolized all over inside, will hold two or three pints of syrup without leaking.—Ed.]

AN EXPERIENCE IN MOVING BEES IN HOT WEATHER.

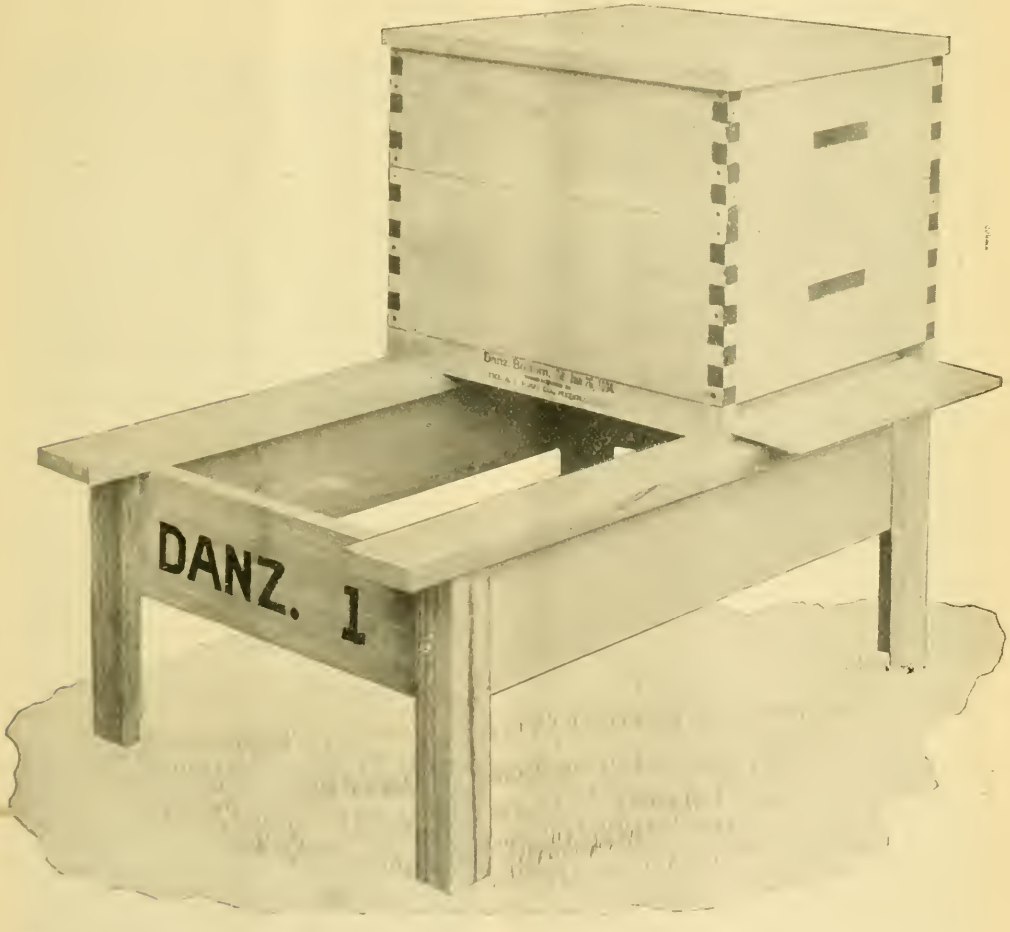
A few days ago I had occasion to move a few colonies of bees. They were in new

Simplicity hives, one-story, *very* full of bees, and *very* heavy with honey in frames *not* wired. How to take them (a little over 20 miles) on a wagon heavy enough to haul sixty hundred over these California grades in the heat of the day, in the hottest part of the year, was the question, and here is how I did it with almost entire success.

To prepare the wagon I put boards across the middle in front, and back of a space large enough to receive the hives, and filled it with hay 6 or 7 in. deep. I took an empty hive, tacked a piece of wire cloth over the top, took off a hive-cover and put the empty hive on, fastening it by tacking two strips up and down each side, and nailing the entrance up tight. I then took pieces of heavy paper, such as is used under carpets, and tacked to the sides of the hives, letting it bow up like a wagon-cover 6 or 7 in. above the wire cloth, and projecting at each end. I set the hives on the hay, and moved up the board across the wagon-bed so they would keep the hay close up to and under the hives, and passed a wire around the hives so they could not slide about.

I did not get started for home until a little after 1 P. M., and it was dark when I got home. The day was warm enough to make my horses sweat more, with the three colonies of bees, coming home, than going in the day before with a load of nearly fifty hundred. Before I had been on the road an hour, in one of the hives the bees had found a leak at one of the entrances, and several dozen got out and buzzed about my head and face some, and two stings were the result. I was on a long grade, and meeting a good many teams, so I could not stop, as I should block up the way, and might get some one into trouble; but as soon as I got to the bottom of the grade I got the leak stopped, and saw no more of the bees; but I think I found them all on top of the screen when I came to open the hive the next morning.

When I reached home I set off the bees at the yard, and the next morning at daylight I placed them where I wanted them to



THE CALLBREATH HIVE-STAND AS MODIFIED BY FRANCIS DANZENBAKER.—SEE EDITORIALS.

stand, took off the screen cloth, and opened the entrance and put on the covers. I did not get time to look at them until the second day after, when I found them all right except two frames in one hive, one solid with honey, and the other solid with honey, and a little brood broken down.

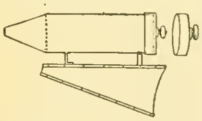
A. J. Burns.

Black Mountain, Cal., Aug. 24.

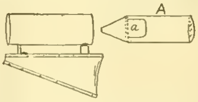
[Although you do not say so, I take it that the pieces of heavy paper which you tack over the top of the hive in the form of an inverted letter U were to shade the bees and the combs.—Ed.]

WHO FIRST DEVISED THE BREECH-LOADING SMOKER?

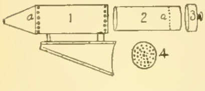
Friend Root:—I see by your issue for July 1, page 594, that I am likely to come in conflict again with the Root Co. Before, it was an adjustable bottom-board to a hive; but now it is in regard to smoker construction. Several years ago I was in need of a smoker, so I thought to improvise one from material I had at hand. Two pieces of board and some sheepskin and wire springs constituted the bellows. A tin baking-powder can with the bottom knocked out was the basis of the fire-box. In place of the bottom, a metal nozzle, conical in shape, was fastened in the place of the bottom. A wooden handle was made fast to the cover; a wire screen fitted into the nozzle at its junction with the tin can, and the whole was attached to the bellows as herewith shown. You see my smoker was a breech-loader, as the nozzle was fastened to the other end of the fire-box tightly. The can-cover removed shows at the right.



I afterward constructed several smokers for Mr. F. S. Hall, a Georgia bee-keeper, upon a different plan, his idea. Then afterward I built one for my own use, with a fire-box of sheet iron to slip into the outer tin case from the upper end, as herewith shown. A shows the sheet-iron fire-box removed; *a*, feed-hole; perforated bottom is seen at the right of *a*. Both the top and bottom of this sheet-iron tube were perforated.



Last season I planned some improvements in the fire-box, and began the construction of a new smoker, as here shown, but have not had time to finish one for this season's use. 1 is the tin casing, with vent-holes to let out the heat; nozzle firmly attached to the casing; perforated plates at *a*. 2 is a sheet-iron fire-box open at each end, having a perforated plate at *a*. 3 is an ash-box slipping over the end of the fire-box. 4 is a perforated plate.



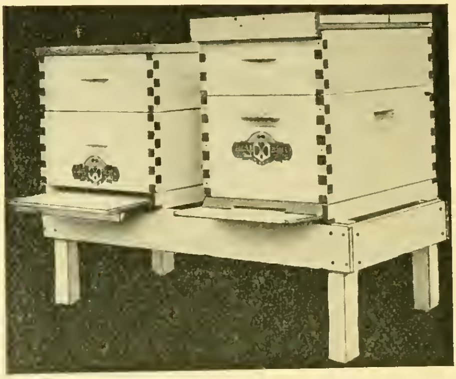
You will see that this is a muzzle-loader, but slipped into the outside casing from the *bottom* end. You will also notice in the smoker I went back to my old original baking-powder-box smoker, only adding the loose sheet-iron-cylinder fire-box. I have some other improvements in the valves and in the construction of the bellows which I am working out.

I thought best to explain this to you, so in case I "come out" with a new smoker you will not suggest that I borrowed my ideas from your new smoker illustrated on page 594, as before mentioned.

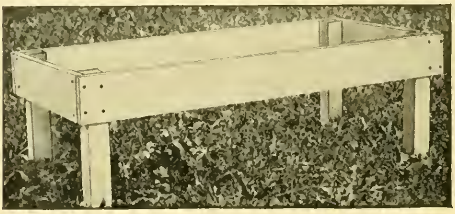
C. F. Parker.

Mentone, Ala., July 9, 1903.

[I will explain to our readers that Mr. Parker used a tilting-floor bottom-board before we brought out the one illustrated in the catalog of this year; but the tilting feature proved to be so unsatisfactory that, after one season's use, we abandoned it; and the same is true of the breech-loading feature in smokers — another feature in which Mr. Parker has anticipated us. But the breech-loading feature goes away back to 1864, in a patent that was issued to a Mr. Kidder. A more modern application of it that would apply to bellows smokers was anticipated by Mr. G. W. Brodbeck in 1892. But Mr. Brodbeck, if I am correct, replenishes, not by the breech-loading but by the muzzle-loading part of his smoker. It is a difficult matter nowadays to make an entirely new discovery or invention; for example, the dual plan of getting queens, as mentioned in this issue by A. I. R.—Ed.]



THE ROOT-CALLBREATH HIVE-STAND. — SEE EDITORIALS AND P. 885.



CEDAR FOR SMOKER FUEL.

Did any of the bee keepers ever try cedar wood in their smokers? That will make the water run out of your eyes, ahead of rotten elm wood, and makes a dense smoke. A puff or two will quiet angry bees in short order. ELAM MOYER.

Blandford Station, Ont., Aug. 24.

CONVENTION NOTICES.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held in the Court-house, at Rockford, Ills., on Tuesday and Wednesday, Oct. 20 and 21, 1903 A good program is being prepared, and all interested in bees are invited to attend.

Cherry Valley, Ill. B. KENNEDY, Sec.

The Connecticut Bee-keepers' Association will hold their fall meeting in the capitol, at Hartford, on Nov. 4th. All bee-keepers are cordially invited to attend. For full information write the secretary.

Watertown, Conn. MRS. EDWIN E. SMITH.

The annual meeting of the Hamilton County Bee-keepers' Association took place Monday evening, September 14, at the Grand Hotel, Cincinnati.

The secretary, Mr. W. J. Gilliland, read the minutes of the meeting held September, 1902. when the Association was organized. The by-laws were next read, and, together with the minutes, were approved as read.

Upon roll-call of officers and members, it was learned that 47 members comprise the Association.

The secretary was then called upon to read the minutes of the various meetings, beginning from the first meeting last September, up to the present time. This proved very interesting to all present, for in the mind's eye one could see the gradual growth of the Association like unto a rosebud about to cast its splendor upon the light of day. Our Association has just begun to unfurl its petals of progress, but in a short time we shall stand forth as an association of more than minor importance.

Quite a treat was now in store for us, and it was the secretary's report of the past year. Mr. Gilliland, who is an able bee-keeper, speaks of the association as having been successful in the past year. When the Association was organized 29 members were recorded; and in the course of twelve months 18 new members were added; and we may congratulate ourselves on the prospect, for it is obvious we did not strive in vain.

The question of foul brood prevailed throughout our monthly meetings. The formalin-gas treatment was brought to the foreground, and was discussed pro and con, time and again. A number of bee-keepers were enthusiastic to have this treatment adopted by the society, and lost no time in putting its merits to a test by fumigating the infected combs. The result in every instance was a complete failure.

The Association thereupon adopted the McEvoy treatment, which is recognized and acknowledged in America Canada, and Europe as the most successful remedy known, at the present time, for the permanent cure of foul brood.

Cincinnati being centrally located, the society is making an effort to bring the National Association of bee-keepers there in 1904. This should receive no little consideration; for, without a doubt, should the Association be successful in its efforts it will prove beneficial both to commercial and business interests of the "Queen City."

The editor of GLEANINGS has very kindly placed the columns and the influence of his paper at the disposal of this society. This favor conferred upon us by the editor is fully appreciated by all interested in apiculture in this vicinity.

Having finally disposed of the foul-brood question, it is now the duty and should be the ardent wish of every bee keeper in Hamilton Co. and vicinity to become energetic in placing on the statute-books of Ohio suitable laws which will protect the honey-bee as well as the various interests connected therewith. With this suggestion the secretary's report was brought to a close, and was accepted as read.

Those present at the annual meeting were afforded an excellent opportunity to examine specimens of foul brood, a fine grade of comb honey and an active frame of working bees in an observation hive.

The treasurer's report was read and accepted.

After the collection of the annual dues, the election of officers for the ensuing year took place, and resulted as follows:

President—Mr. Henry Shaffer.
Vice-president—Mr. John C. Frohliger.
Secretary—Mr. Wm. J. Gilliland.
Treasurer—Mr. C. H. W. Weber.

It was then moved that an amendment be made to the constitution, viz., that twelve members serve on the executive committee instead of six, thereby promoting a wider scope for enthusiasm and increased interest among the members.

The following members were chosen to serve during the coming year: Fred W. Muth, R. L. Curry, A. E. Painter, Chas. Kuck, E. P. Rogers, E. H. Chidlaw, Wm. McClennan, W. R. Gould, G. Green, E. H. Vaupel, Miss Carrie Boehme, Mrs. J. C. Frohliger.

Mr A. E. Painter, an able lawyer and bee-keeper, favored the assembly with an eloquent address pertaining to the active interest which should be manifested among the bee-keeping fraternity to interest the State Legislature in procuring a foul brood law, which would be an inexpressible advantage to the Association, and all bee keepers in general. Mr. Painter deems it advisable to appoint a special committee to go before the legislature at Columbus; but before doing so, however, he is of the opinion that it would be prudent to send a circular letter to each member of the legislative body, in order that all may have time for consideration and argument. This method would undoubtedly prove more effective to the interest and energy displayed by the committee.

A few States have gained their point and are now resting easy under the protection of a foul-brood law. A commissioner is appointed to notify all bee keepers whose apiaries are infected with the malady to destroy all such colonies, or, if possible, remedy the defects. This commissioner is paid out of the county's funds. Illinois, for instance, is allowed $1000 annually for this purpose.

If some of the States have been successful, why can not we in Ohio, who have so many broad-minded, brainy men in our midst, dwell under a like protection and advantage, which might correctly be termed a necessity? There has been but one cause heretofore, and that cause the lack of interest. 'Tis true we are all interested in a way, but we must show active interest, which, without a doubt, during the coming year, will wend its way and waft its breezes among the bee-keeping fraternity, over our entire State.

Short but none the less interesting addresses pertaining to the protection of the honey-bee were ably delivered by Messrs. E. H. Vaupel, Wm. McClennan, and Fred W. Muth.

A motion was made and seconded that the members of the executive committee constitute the committee to bring before the State Legislature this question of foul-brood law, to be energetic and tireless in their efforts to render the same effective and successful; for in this way only can our ambitions be gratified.

Mr. W. J Gilliland suggested that a census be taken of the bee-keepers in Ohio, as well as the number of hives each bee-keeper possesses.

Mr. Fred W. Muth again called on the assembly to put forth all possible efforts in securing the National Association of bee keepers in 1904. It was moved and seconded that the executive staff take up the matter immediately.

A motion was made and seconded to express our gratitude to the managers of the Grand Hotel for their kindness in granting us the privilege of holding our meetings in their spacious and comfortable apartments.

A word in behalf of the Association in general. We are proud of it, and we have the right to feel so. When our little body of bee keepers nestled in a group to form an organization, many predicted any thing but success, and were firm in their belief. Our little assembly, however, was not to be daunted. They knew that they were entwined by the circle of success, and were firm in their determination not to step beyond the bounds of this brilliant circle. Their progress in so short of space of time is indeed greater than they themselves anticipated. And now since GLEANINGS has so kindly volunteered to be our guide and friend, we can do naught but win.

Silverton, Ohio. WM. J. GILLILAND, Sec.

OUR HOMES,

BY A. I. ROOT.

Fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both soul and body in hell.—Matt. 10:28.

A father was coming home from his work one evening. I rather think his home was a new one, for both himself and his children seemed a little unfamiliar with the surroundings. As he came in sight of this home his boy Johnnie started out on a run through the tall grass crosslots to meet him. The father smiled when he saw his boy so anxious to greet him on his return; and when the boy tumbled down in the deep grass he did not think very much about it. He supposed the boy had stubbed his toe or got his foot entangled in the grass, and would soon be up again. Johnnie, however, did not get up. The father, reflecting a little, remembered an old unused well there in that tangled mass of grass and weeds. As the memory of this well came to his mind he hurried up, you may be sure; and, sure enough, the boy had stumbled into that old well. But I am happy to tell you the well was not very deep, and there was only a little water in it. Johnnie had recovered himself enough to get on his feet, and with his face bespattered with mud and tears he reached up his hands and said: "O papa! why didn't you hurry up?"*

Now, friends, let us consider, if you please, whose fault it was that Johnnie fell into that old well, soiled his clothes, and made his poor mother a lot of hard work in getting him clean again, even if he was so fortunate as to sustain no injury. I think you will all agree with me when I say that Johnnie himself was a good deal to blame. Anybody, even a child, should be careful about running headlong in a place where he is not perfectly acquainted with the locality and surroundings, especially where it is grown up with grass and weeds. Of course, parents often say, "Let the children tear around and learn these hard necessary lessons by experience, even if the experience be somewhat bitter at times." Such talk will do very well; but, if I am not mistaken, Johnnie's father blamed himself, and perhaps quite vehemently. The father *was* greatly to blame for not making himself acquainted with the dooryard and its surroundings where he chose to locate his wife and children. Just the minute he discovered, or had an inkling that there was an old well where children might stumble, he should have covered it up, put a fence around it, or at least have cut away the weeds and grass with the scythe so that every one could see at a glance the *danger* that lay in that direction. The father who permits a well or cistern to remain uncovered should be remonstrated with. If he does not at once heed the remonstrance he should be compelled *by law* to take care of such dangerous places where children or other people might pass in the dark.

Not only is the *father* to blame, but the mother also. If she pleads in extenuation that she did not know any thing about the well, and never heard of it, *this* should not be a sufficient excuse. It is every mother's business to look carefully over the surroundings; and she should go as far from her home as any of her children are likely to wander. She should know by personal *inspection* whether or not there are open wells or cisterns where they may not only sustain serious injury, but perhaps lose their lives. Very likely many of you can remember where children in your own locality have lost their lives through just such carelessness.

And not only the mother, but the older brothers and sisters, if there are any, should be responsible. Yes, and the neighbors, if they know of such places, should be severely censured if they have permitted them to go uncared for. The town or city should have an ordinance making it a misdemeanor to endanger life in this way. And finally the whole State, or the United States, should, if it has not been done already, enact stringent laws, and punish the offenders by a severe penalty for slovenly negligence in the matter of which I have been speaking.

At a recent Sunday-school convention in Los Angeles, Cal., Dr. Miller was called on to speak. He said a boy here in this land is of more value than any thing else in the world. I think he quickly corrected himself by saying that a girl in this present age is worth almost as much as a boy, and possibly *some* people would think a little *more*. But I think you will all agree, that the boys and girls, say about the age Johnnie was when he fell into that old well, are the most valuable things the United States or the *whole wide world*, for that matter, has to look after and care for. We may thank God for the just and reasonable laws that we have for grown-up people; and I believe the tendency in recent times is to consider the health and best welfare of our boys and girls of fully as much (if not more) value as we do the lives and welfare of our grown-up people. Men and women can take care of themselves, in a measure, in a way that children can not. May God help us, not only to feel but to shoulder our responsibilities as American citizens.

Now, friends, I am not sure you will all agree with me, at once, when I say that, bad as it is for boys or girls to fall into an old well and lose their lives, there are worse things that *can* happen to our children than even this. When we hear of somebody who has lost his life by stumbling into a well, we raise our hands in horror; and every man, woman, and child sends up a protest of blame and censure against one who is guilty of leaving such a place unprotected; but I tell you it is true there are worse places than these that our boys, and girls too, are falling into every day in the year, and yet there is no adequate stir being made about it. Some of you may say I am an alarmist, and that I magnify the dangers; but if you will read my text at the head of this talk I think you will be compelled to admit that the dear Savior recognized and emphasized just what I have been saying.

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* I think I found the above incident in a recent issue of the *Sunday School Times*. The morals which I draw further on, however, are my own.

After Johnnie's papa lifted him out of the well the mother cleaned up his clothing, perhaps gave him a good bath, and he was as good as ever. The neighbors may have censured him a little for his childish heedlessness, but no one would think of laying it up against him. But suppose, my dear friend, a little later on Johnnie went to jail, or perhaps to a penitentiary, for some foul crime. Could the poor mother fix him up "as good as new" after such an experience? When he fell in the well, he soiled his nice clothing; but how about a soiled and stained character? Can the mother or the father wash out these stains? Can they prevent the story of his crime following him to the last days of his life? Away back in GLEANINGS I mentioned a poor girl who was rescued by the Salvation Army. When she was but a mere child she was "sinned against" by a certain *relative* who had been appointed her guardian. Those who knew the circumstances would hardly blame the child for what happened. When she was old enough she broke away from her life of sin, and was taken in hand by the *Salvation Army*, because nobody else would have her around. She was a Christian girl, skillful and competent; and in this day and age when household help is in such great demand, she found places without a bit of trouble, and kept them, until the story of the past came out; finally she went away from home trying to find a locality where they would not hear her former history. Do you know the result? Just as soon as the story of her misfortune (I am sure that is the right word) reached her new home she was promptly dismissed. Not a word was even mentioned of incompetency in any respect; in fact, they seemed to feel very sorry to part with her; but they could not think of having a girl in their Christian (?) home, no matter what her present life and conduct might be, whose character had been stained years before. Now, I do not say this is right. God knows my soul rebels against such injustice; but it is the way of the world. If the child had fallen into the well, and had been crippled for life — or I think I can go further, and say if she had lost her life — it would have been better in the estimation of many people than to suffer this very fall I have mentioned. If there had been no Salvation Army around, very likely she would have never heard about "Jesus and his love," and she would have gone down the customary path to a life of shame and ruin. In view of this, dare you tell me that I am mistaken when I insist there are worse places for endangering not only bodily life, but the life of the soul as well? and places that exist not only in our cities but in almost every small town and hamlet throughout our land? Our laws are progressive in many ways. They are filling up wells in our cities where boards of health have decided the water was unwholesome. They are making magnificent progress in getting rid of the cause of disease—especially contagious ones. Surgery is making great headway. Perhaps we are making *some* headway along the lines of the whisky-traffic; but, oh dear me! I presume there are thousands of our readers who will vehemently stand by me in what I have said about fencing off dangers in the way of covering wells and cisterns. Why, if somebody discovers a hole in a bridge on any of our country roads, no matter how great his hurry he goes and gets a rail or board, and sticks it up in the bridge so people driving may keep their horses out of it. It is a rather bad thing for a horse to get a broken leg on account of a faulty bridge. When men are digging through our streets putting in water or gas pipes, they are obliged by law to put a lighted lantern by the side of the ditch; and not only that, it must be a lantern giving a *red* light as a signal of danger; but who is there that takes the trouble to stick up a rail in front of a saloon? No! I do not mean a *saloon* after all. I mean a "blind pig" or a "speak-easy." These places are, for all the world, like the uncovered well in the midst of the weeds and grass. They are all through our prohibition towns, or nearly so. They profess to keep a restaurant, or sell "soft" drinks—perhaps it is a drugstore; and these things are like the weeds and grass, as the business is carried on "on the sly."

Perhaps you turn away from my talk, and think the matter is not so bad as I have presented it. But I am not alone in my protest against these things. Less than a week ago a foul murder was committed in Cleveland. This time, with commendable alacrity, the police summoned their forces, got evidence here and there, and in less than a week had the two murderers behind the prison bars, and their pictures appear in the daily papers. They found where the men had been all one Sunday afternoon. They even proved how many drinks they had had at this, that, and the other place. The murdered man had been drinking too. They had no spite against him—that is, in their *senses;* but under the influence of the drink he was foully murdered, just for the little money he happened to have in his pocket when he went on a spree with the other two. Here is what the Cleveland *News and Herald* says in regard to the matter:

> The police are to be congratulated upon the arrest of

the two young ruffians who are said to have confessed to the brutal murder of a man in the vicinity of Bessemer Ave. and the Cleveland & Pittsburgh R. R. track, on Sunday evening. They did a good piece of work in quickly laying their hands upon the alleged murderers.

Two things should be observed in this connection, however. One is, that the prisoners drank in several saloons before the fatal assault was committed. This was on Sunday evening, when no saloons are supposed to be open In that connection it may be reasonable to ask if there would have been a murder had the police done their duty in enforcing the law against Sunday liquor-selling.

Again, it is said that at least one of the prisoners has given the police much trouble in the past He has been arrested several times, the last time in July, when he was charged with suspicion. The "kind and considerate hand" appears to have been reached out to shield him, and but for that he might have been placed where it would have been impossible for him to commit a murder.

To what extent are the authorities of this city responsible for this latest murder, because of their failure to enforce the law against Sunday liquor selling, and of their failure to hold at least one of the alleged murderers when he had been arrested on a charge of suspicion? Disregard of law, and lenient treatment of offenders, may be regarded as in the interest of humanity, but they are often promoters of crime.

Now, friends, would it not have been a magnificent thing if the policemen of Cleveland had shown the same *thoroughness* and *alacrity* in closing up *Sunday saloons* that they did in ferreting out and bringing to justice the parties concerned in this murder?

Now, may be I am getting off my beat when I suggest something that this great Cleveland daily does not mention. The mayor of Cleveland, who not only has a big salary, but has taken his oath to enforce the laws, instead of being on hand in that great city to encourage the city police in enforcing the laws, where is he? As nearly as I can find out, he is off in an automobile, making speeches all over this State because he wants to be Governor of Ohio. I wonder if he has ever noticed the little text that says, "He that is faithful in that which is least is faithful also in much." Now, I for one protest against electing a mayor who draws his salary, and works all the while at some other job. I protest, also, against this modern fashion of having a postmaster who hires somebody to take care of the postoffice while he does something else, and so on with every other public office. Get a man whom we have every reason to believe from his past history will attend strictly to his duties and nothing else. And especially do we want men who demonstrate their fitness for a higher office by sticking right to the job the people of the nation have already given them.

When poor bespattered Johnnie reached up his hands in a plaintive appeal to his papa, who was a long while in getting there, he said, "O papa! why didn't you hurry up?" And this is the moral that the *Sunday School Times* applied to the story of the boy who fell into the well. We want a lot of "hurry-up" people to look after our boys who are stumbling into all these dangerous wells, or who have already fallen in. I fear we are turning this whole business over to the Salvation Army, of reaching down and pulling up the boys and girls, no matter how repulsive the work may be. God bless the Salvation Army! Surely they are a part of the great army of "hurry-ups" we need. Then we want hurry-up fathers and mothers; hurry-up Sunday-schools; hurry-up prayer-meetings; hurry-up Y. M. C. A. organizations and Endeavor societies; hurry-up temperance societies and temperance people, no matter where they are.

In speaking of the Y. M. C. A., I am reminded that Dr. Miller and I had rooms very near the great Y. M. C. A. building in Los Angeles. We visited that building several times, both on week days and on Sunday, and never found a door unlocked. I went there twice after Dr. Miller left, and could not get in. Now, there are some grand things about the city of Los Angeles, and I expect to speak of them in due time; but who is there in Los Angeles or anywhere else who can give a reason why the Y. M. C. A. reading-rooms in that great city should be locked up, especially when they have guests from abroad by the thousands?

It rejoiced my heart to hear Burdett give us an excellent sermon—a sermon in which he scored the police pretty severely for their treatment of the Salvation Army — and on the evening of the same day I heard Francis Murphy, and saw the evidence of the great work he is doing in that city. Murphy is now old and gray-headed; but there is considerable "hurry-up" about him, even yet. May God be with the hurry-ups, and may the readers of Gleanings, each and all, be found in the front ranks.

NOTES OF TRAVEL
BY A. I. ROOT.

There are some things I have omitted in my travels away back that I will take up just now. Last winter I had a very pleasant visit with Mr. Wallace R. Moses, of West Palm Beach, Fla. Mr. M. is a real-estate dealer, and can probably give good advice to anybody who contemplates making a visit or purchasing a home in the land of perpetual flowers and sunshine. Friend Moses has a very pretty garden, not only of all the vegetables that will grow in his locality, but he is testing tropical fruits and flowers to quite an extent. As his property runs down to the salt water of Indian River, he has quite a collection of valuable plants that will grow in the salty marsh near the water. Then he has cut a little waterway up into this garden, where he runs a pretty little gasoline-launch; and I greatly enjoyed the trip in the boat for quite a distance around in the neighborhood of that great Palm Beach Hotel. The boat, up among the flowers and plants, makes a very pretty combination.

On my way home from Cuba I had a most pleasant visit with our good friend J. M. Jenkins, at Wetumpka, Ala. Most of the friends in the South know more or less about friend Jenkins because he has for so many years had charge of the Root Co.'s goods in that section. Besides, he has quite a nice little bee-hive factory of his own. In fact, he has just installed a new factory built all of brick. If he did not live so far down south I should call him a natural-born Yankee. Do you know why? Well, when he wanted brick to make his factory he could not get them just to his notion, so he established a brickyard, or bought one of somebody else; and he has not only made brick for his own building, but he has furnished a very nice article for quite a number of buildings in Wetumpka. When the bee business is not crowding, he utilizes his hands in the brickyard. Well, his home is quite a little piece from the postoffice; and on account of his large business through the mails, or for some other reason, our benevolent Uncle Sam has given him a postoffice in his own part of the town. The name is Honeysuckle, and it is in charge of one of his bright wideawake daughters. One of his other daughters, in company with the mother, takes charge of all the correspondence in that new brick factory; and you just ought to see the bright little office occupied by the women-folks. In place of cigar smoke and untidy-looking spittoons, which we too often find in offices occupied by men, these women have got some beautiful flowers, and the room is fixed up almost like a parlor. If a man with a cigar in his mouth should get a glimpse of that tidy little room I am sure he would leave the cigar outside.

Well, now, the brickyard and the bee hive factory are not all friend Jenkins has on his hands. He is engineer and conductor of the branch railway that runs from Elmore, twelve miles, on the L. & N., to Wetumpka. He has charge, and has had for years, of this entire branch railway. He sees to the carrying of the mails, passengers, and freight. I asked his good wife if he had any other business enterprises besides what I had seen. She said he did have a farm out in the country, but she persuaded him to let it go. He also has one or more buildings to rent; is one of the directors of the principal bank in his town, and, if I remember rightly, he holds two or three important public offices besides. When he gets older he will probably let go of some of them — at least I hope he will.

THE BLUE COLORADO SPRUCE.

Now, friends, if you will excuse an abrupt jump of several thousand miles we will alight for a moment in the bright little village of Farwell, Clare Co., Mich. When I visited friend Bingham he told me we must be sure to call on the Wilkin sisters, and while there to be sure not to forget to notice a beautiful specimen of the Blue Colorado spruce. I did notice the tree, but forgot until now, to make mention of it — see p. 771. This spruce has a sort of bloom much like the bloom of the plum over all its foliage. On this particular tree this blue haze or halo is so pronounced that one starts in surprise on getting a glimpse of it. It gave me a pleasant thrill; and when I inquired about it the sisters told me the trees were not so very expensive, but that only occasionally a specimen showed this marked peculiarity to such an extent as the one I was looking at. They furthermore pointed to several little trees that I think they said were seedlings. Some of them showed the blue more than others. I said then and there that I was going to have such a tree on our lawn, and also several near the cabin in the woods, where evergreens grow spontaneously. Now, friends, when you visit a nursery again, or when you look over some of the beautiful homes, watch and inquire for the blue Colorado spruce. With this preface we will take up our travels through Michigan on the automobile, where I left off at the town of Traverse City.

While Huber and I were stopping at the cabin in the woods we had the misfortune to break the main shaft in the engine of our automobile. I think I will tell how we did it, as it may prove a caution to others. Near the town of Bingham there are some very bad sandhills. An automobile will run up almost any hill where a team would attempt to pull any kind of load, especially if the ground is hard and firm. Where the soil is so sandy that the loose sand runs in between the spokes of the wheels, it is a pretty hard matter to run any automobile. When a horse pulls a vehicle he lifts up somewhat on the wheels and thus prevents them from sinking. The automobile, however, has no such lift upward. The engine can simply turn the rear wheels. In getting through dry sand or through soft mud we often have to run the engine a pretty good speed, and then put on the slow-motion clutch. Sometimes we can go only a few feet at a time; but it is generally possible to get up almost any hill by taking time. The road from Bingham Dock to the town of Bingham is cut up very deep by drawing heavy loads of lumber. For the first time in the whole trip through Michigan we found here a ridge of sand so high between the wheel tracks that in one or two places it struck the chain of the machine. You know how it works when you get sand on the chain of a bicycle. Well, in attempting to go over this sandy ridge the shaft was broken. Later on we got a boot or shoe that protected the chain so it could not possibly get into the sand. Let me say to the credit of the Olds company, however, that a new shaft and balance-wheel were sent us promptly at their own expense. When we bought the machine it was with the understanding it would make the trip all right through Michigan, and it did so. I may say briefly that, before the new shaft arrived, Huber and I, with such tools as we could pick up at an ordinary farmhouse, made a splice that held very well for over 200 miles. We were about a day and a half in doing it.

At the town of Grawn, a little this side of Traverse City, a hotel-keeper who did not like automobiles informed us that another "billy goat" just like ours had passed through there only the day before. Automobiles have had a great many names, but Huber and I thought this capped them all—not a very dignified name, surely.

We got into Cadillac between seven and eight in the evening; and although we had relatives there, Huber was in such a hurry to get home he thought we could stop only about twenty minutes — long enough to shake hands, etc. A bright-eyed accomplished cousin of his, however, so changed his mind that, before the evening was over, he concluded it would not put us back very materially if we stopped over in Cadillac a *whole day*. Cadillac is situated on the shores of a beautiful lake, and the enterprising inhabitants have built a macadamized road nine miles in length clear around the lake, close to its shore. Our auto made it easily in one-half hour, and it is certainly one of the finest "drives" in Michigan. Cadillac is quite a manufacturing town; and when it comes to beautiful homes with cement walks and grassy lawns and nicely paved streets, I do not think I have ever found a prettier town in all my travels.

Somewhere between Cadillac and Big Rapids, I am sorry I can not tell just where, we passed by one of the fish-hatcheries established by the State. It was one of my "happy surprises." I did not know any thing about it until I saw some dainty little fish-ponds surrounded by bright grassy lawns. Finally I told Huber I thought it must be a fish-hatchery, and, no matter how great our hurry was, we *must* stop and look it over. There were little fishes, about the size of bees, or larger; speckled trout, black bass, and all the best food fishes known. In one of these little ponds you would find the fish about the size of bees; in the next, perhaps an inch long; then two and three inches long, and so on all the way up to fish big enough to produce spawn, and breed. I believe they are hatched out in a properly constructed building. It was just feeding-time when we stopped. I think the principal food for the fishes is raw liver, or some kind of cheap meat. This is ground in a machine, and then tossed into the water for the fish. For the little fishes it is ground very fine, larger for the larger ones, and so on. I think some of them are also fed on vegetable foods. When the food was thrown in among the fishes, a great lot of them, to show their joy, jumped clear out of the water. These fish-hatcheries can be located only where there is an abundance of clear cold spring water. This keeps the temperature of the fish-ponds very near the same, winter and summer, and washes out all filth, giving the fish a constant stream of pure fresh water. In the shallow tanks in the buildings it is interesting to see the baby fishes, each one swimming with all its might; but the current of water through the shallow box or trough was graduated so the movement of the water was just about at the rate the fishes could swim; so they exercised their tiny fins in swimming with all their might, but they did not move along any. I noticed they all seemed eager to get close to where the water was admitted into the tank. They like fresh water just as we like fresh air.

Lake View is a very pretty *little* town also on the border of a dainty little lake. We stopped there to get water at a country store for our machine. I used to tell people our horse did not eat *oats*, but he needed water to drink about every 25 miles. While we were filling up the water-tank, I noticed some baskets of very nice-looking Red Astrachan apples standing out in front of the store; and then I noticed every man, woman, and child in the crowd standing around the machine was eating red apples as if they really enjoyed them. I handed the woman who kept the store a nickel, and told her to give us some mellow apples that were ripe enough to eat. When she prepared to give me about a peck in a paper bag, I remonstrated. I told her we could not take care of so many, and, besides, she could not afford so many for a nickel.

"Oh, yes!" she said, "that is all right. We sell them for twenty cents a bushel, and you ought to have about a peck for the nickel."

That was a woman's idea of storekeeping; but I think most of the men would want a little larger profit than that. I ate two apples, and they seemed to "hit the spot" so exactly I told Huber I felt sure they must be exactly what God intended we should have for food. Then I looked into the bag and saw a great big one that was so ripe it was breaking open. I thought I would just taste it, and see if it was as good as the other two. Then I remembered what Terry said, and I said to myself, "If I just *think* these apples will not disagree with me, they will be all right; so, here goes."

I will confide to you, dear reader, that within less than an hour there was quite a little delay with our automobile trip. I presume one reason why the apples made me sick was, they were the first ripe ones I had tasted for the season. If I had taken half an apple the first day, the next day a whole one, then two apples, until I had got a little used to them, I could probably have eaten three without disagreeable consequences. Dame Nature objects, or seems to, to too big a dose of almost any thing in the way of food to begin with. Some of you may suggest that it is not a very bad thing, after all, if one *does* get a severe physicking with new fruit. This may also be true; but my opinion is, it is better to go a little slow in upsetting the machinery of the digestive organs a little too suddenly. At the present time, Oct. 2, I am eating two good-sized ripe apples every day without bad consequences.

At Greenville, Montcalm Co., Mich., I was surprised to see some beautiful large factories that I was told were devoted to the business of producing silk; and this was the first intimation that I had had that silk-factories were to be found in Michigan. Can somebody tell us a little more about it?

Cuba.

If you are interested in Cuba and want the truth about it, subscribe for the

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the only English paper on the Island. Published at Havana, Cuba. $1.00 per month, $10.00 per year. Daily (except Monday).

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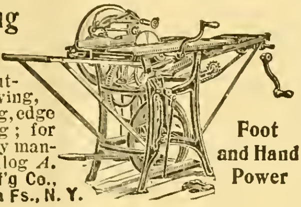

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A.*
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

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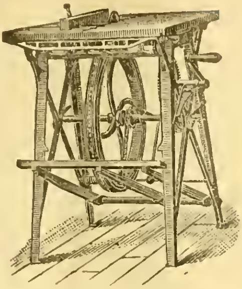

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This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.
Machines on Trial.
Send for illustrated catalog and prices. Address
W. F. & Jno. Barnes Co.,
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depends upon its convenience and life. The life depends upon the wheel. You get every convenience of the **Modern Low Handy Wagon** and double its life by using

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For a few dollars you turn your old running gears or one you can buy for a song, into a new wagon. Straight or staggered oval steel spokes. The stoutest wheel you can buy. **Any height, fit any wagon.** No repairs, no rutting, light draft, long service. Let us send you free catalog to show you how it saves you money.

Electric Wheel Company., Box 95, Quincy, Illinois.

OUR TREES etc., have been the standard of excellence for half a century. The best always cheapest. Have hundreds of carloads of

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40 acres of Hardy Roses including 45,000 of the famous Crimson Rambler. 44 greenhouses of Palms, Ficus, Ferns, Roses, etc. Correspondence solicited. Catalogue free. 50th year. 1000 acres.

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Makes healthier fowls. All latest improvements.

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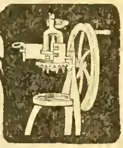
No money until you're satisfied that it cuts easier and faster than any other. Isn't that better than paying cash in advance for a machine that you never saw! Catalogue free. **F. W. MANN CO., Box 37, Milford, Mass.**



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Knowing just when to sell or when to buy means dollars to the farmer. It is a lever that can be made to count in profit in many ways and the telephone is the greatest means to this end. With a

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you are in a position to *know* the market prices from day to day, hour to hour. They're not a luxury—cost is trifling—they're a necessity to successful farming. Send five 2c stamps for 128-page telephone book. Our book F- 36, "Telephone Facts for Farmers," is free.

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WE WANT YOU AS A PARTNER

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GUARANTEE you at least 7 per cent on your investment, with additional profits of from 15 to 40 per cent per year
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MERCHANDISING is the money-maker of the age. Of all the great money-making department stores, THE MAIL-ORDER DEPARTMENT STORE is the greatest. Its line comprises everything from a needle to a threshing-machine. Everything the people eat, wear, and use from the cradle to the grave. Its field is not limited by city and suburban limitations, but extends to every town of the country and every country on the globe. It requires less capital to do an unlimited amount of business than any other mercantile or manufacturing enterprise Its expenses—selling or fixed—are less than in any other business. It is a strictly cash business. It has no losses It does not depend on seasons or local conditions. It is a "hard times" business. It does not even depend on prosperity. Its profits are immense.

An Investment of Less than $40,000 Yielded Over a Million Dollars in Cash in Less than Six Years in One of the Chicago Mail=Order Houses.

All this is fully explained in a book which we want to send you free of all charges—on request The book gives the complete history and earning power of the mail-order business. It gives statistics showing that the famous co operative stores in England cleared over 40 per cent on the investment last year. We have reorganized our old-established mail-order business under the co operative system. We want to interest you (no matter how large or small your capital) and we know you will be deeply interested if you let us send you our free book. It's a mine of interesting business information It will make you either a shareholder (shares are $10 each) or a customer. IF YOU BECOME A SHAREHOLDER you will find your investment the best and safest you have ever made—you buy into an old-established growing and successful business. IF YOU BECOME A CUSTOMER it will save you at least 25 per cent on every thing you buy.

This co-operative plan enables us to sell at lower prices than all others, and issue complete catalogs of

Athletic Goods
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Crockery and Glassware
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Furniture
Groceries
Guns and Sporting Goods
Harness and Saddlery
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Hosiery
House-furnishing Goods
Jewelry and Silverware
Lamps
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Cash Buyers' Union

First National Co-operative Society,

Established 1885. Incorporated 1889. Re-chartered 1903.

158-168 W. Van Buren Street, CHICAGO, ILLINOIS.

REFERENCES: First National Bank, Chicago, Depository; Metropolitan Trust & Savings Bank, Chicago, Registrars; Messrs. Lord & Thomas, Adv. Agency; Dun's or Bradstreet's Mercantile Agency; any railroad or express company. The publishers of this or any newspaper or magazine. Any bank or reputable business house in Chicago.

REQUEST FOR PROSPECTUS

Cash Buyers' Union, First National Co-Operative Society, Department AA 345
158 to 168 W. Van Buren St., Chicago.

Gentlemen:—Please send your complete "Book of Information" and all literature pertaining to your Co operative mail-order business.

Name.. Street..

P O. .... State ....

It is understood that above will be sent to me free of all charges and that I am under no obligation whatsoever to subscribe. GLEANINGS IN BEE CULTURE.

Investors! Consumers!

You are invited to become a partner in this great business!

and share in its profits in the exact proportion of your contribution to the capital and the amount of goods you buy, and which are bought by all our other customers.

We have divided the capital into shares of $10.00 each, so that you, even if you have the most modest means, can take advantage of this truly wonderful opportunity to—

1==Invest your money and draw dividends of no less than 7 per cent each and every year, with the possibility of earning as high as 40 per cent and more on every dollar invested.

2==Buy your goods at the lowest prices ever known and get an additional discount of 5 per cent (practically all the net profit) on everything you buy.

3==Make money by co-operating with us and get a commission of 5 per cent on all the new business you help us to get.

Our "book of information" fully explains all the particulars of our plan, and we advise you to send for this book and read it from cover to cover, and become a member and co partner of our society as soon as possible, even if you start with but a few shares, and thereby obtain the immense advantages which we offer.

Time for Argument has Passed

HERE IS THE EVIDENCE

Read These Interesting Letters from Our Shareholders who in stronger manner than any language of ours demonstrate the success of our wonderful co-operative plan; the great enthusiasm it has created among all classes and success to which it is destined.

Another $1000 Co-operator.

Yankton, South Dakota

Your letters of the 18th and 19th showing appreciation of my interest and approval of my work, at hand. I am interested because I can see that you have hit upon a great scheme, and I am confident that OUR business will very soon at least, be "the biggest thing on earth" with proper management, and I have faith in the management or would not put my money into it. I am to-day making application for 90 shares more of stock. This gives me the limit.

Your (our) prospectus is taking. It took me, and will others. I wish, if convenient, that my certificate of stock both for this and the former ten shares might be sent to me at Mitchell as I might like to make use of them in interesting others there. I have begun business with you (us) by ordering a watch on which I save $9.00 over the price I would have to pay here for the same article.

A Canadian's Confidence.

No. 5184. Stratford, Ont., Can.

I am sending you to-day $10 for one share. If I were in position to take 100 shares, would take them just as soon as one. This shows the faith I have in your Union, as well as in its officers.

A Great Enthusiast.

No. 5790. Marshfield, Mo.

I congratulate you on being among the few who commence the twentieth century with the co-operative method and idea, which I believe will ultimately become the method in all transactions the world over. I am enthusiastic on this subject and hope I may become a member of your "Society." Universal co-operation means no more poverty, human vengeance, or crime, but peace on earth and good will to man. I am now selling off my farms and live stock, and propose to devote my remaining days to this good work.

From Far-away Korea.

I was much impressed with your Prospectus and with the idea of co-operation. Your push and enthusiasm certainly ought to be contagious, and merits success. I am a missionary at home on a furlough, my field of labor being Korea. Other houses do a lot of business out there, especially in the line of dry goods, household goods, and sporting goods. I thought that, if I went in with you, I might be able to introduce our goods over there and supplant the other houses. The people over there did not like them.

A Strong Believer in Our Success.

No. 5325. Cincinnati, Ohio.

About the first thing that attracted my attention on perusing the Bookkeeper Magazine which I received only yesterday, was your ad. concerning the re-chartering of your company, and after reading same through carefully I could not but help put faith in your movement, as it seems evident to me that it is destined to be a grand success. The fact that I have only subscribed for one share does not mean that I am in any way doubtful of its feasibility, as I should certainly take more were I able to do so just at the present time. Perhaps in the near future I shall be both better prepared to purchase additional stock. I fully believe I can influence many orders in your direction, or, rather, the company of which I am part.

Likes Our Plan.

No. 5058. R. F. D. No. 4, Hudson, Ohio.

I like your plan, and if I had the money should take the limit of stock.

Another Old English Co-operator.

No. 5322. Anita, Pa.

I am heartily in favor with your plan of co-operation. I was a member of a co-operative society in England twenty years ago, therefore I am able to judge of the blessings to thousands of families. I remit to-day $10 for one share, and if not all taken up in the near future I might take one or two more.

Well Acquainted with Co-operation and Our Goods.

No. 5636. Carnegie Library,
Hazelwood, Pittsburg, Pa.

I wish to say I most heartily indorse the co-operative plan, and knowing the benefits and blessings that have accrued to those that have availed themselves of its advantages, by observation and experience, I have seen the people who were careless and slovenly grow into tidy and highly respected citizens because of the help they have received from the half-yearly dividends. They have furnished their homes and paid off old debts and raised somebody in the world; therefore I am pleased that you are engaged in such a worthy cause, and I will join the same and do some thing to increase its membership. My wife desires me to say she is well pleased with her machine, the Arlington.

$1000 from an Insurance Man.

St. Louis, Mo.

Received your book of valuable information, and have read it carefully. I have been looking for several months for just such a company as yours to invest my money in. Inclose you application blank for $1000.

A Head Book-keeper Interested.

No. 5016. Abilene, Texas.

I am to-day forwarding to the Bank of Registrar a check for one share in your enterprise. After my stock shall have been issued I wish to send you a list of those that are in sympathy and would give their moral and financial support to your enterprise, and mail catalogs to them. I am head book-keeper for my firm, and enjoy a lucrative salary, yet I am a thorough co-operator.

Believes in Our Policy of Good Goods.

No. 5051. Malden, Mass.

I am forced to admit that the plan looks fair. Continue to handle reliable goods—let some one else sell the cheap and worthless—and you will no doubt succeed. There are plenty of people in the world yet who want a good article and expect to pay for it. I wish you success in the undertaking, and will contribute my mite toward the same. I have sent the money to the bankers, as you direct, for five shares ($50).

Below All Others in Price.

No. 5379. Grant Park, Ill.

I am sending to-day $100 to the Metropolitan Trust & Savings Bank for ten shares of your profit-sharing stock which I hope I will get I would have sent sooner, but I have been delayed in sending. Now it is to your interest to let me have this stock, as I am a farmer and have lived on a farm all of my life, and order considerable stuff by mail as I find it is a money-saving business.

I have been trading with other houses, but I find you are below them in price for first-class goods. If I get the stock, as I hope I will, I will do my mail-order business with you, and will get my friends and relatives to do business with you. The mail-order business among the farmers is growing every year.

Now, I hope you will see that I get ten shares of the stock, and I will do all I can to make it a success.

Quits His Own Business to Join Ours.

No. 5460. Muncie, Ind.

I have sent subscription and draft as per your proposition advertised in the July "Bookkeeper," and I would be pleased to have you send me what catalogs you have prepared. I was just preparing to enter the mail-order business, and from what I get from your proposition I believe it would be well for me to turn my attention to this work, and I think I can turn quite a large business from this section.

A Heavy Mail-order Buyer.

St. Louis, Mo.

I wish to purchase about three shares of your stock within the next three weeks. I have always been a heavy mail-order buyer; have in the last ten years bought thousands of dollars worth of goods from other houses. I am much pleased with your plan. I want a few shares of your stock, at least three shares, for I am pleased with your prices and plans and want to purchase to a considerable extent from your house.

NOTE: Mr. H. J. Elliott, Secretary of the Metropolitan Trust & Savings Bank, of Chicago, will certify that these letters, the number of the certificate, and the amount subscribed are on record in his bank. As we always treat all transactions and investments of our customers and shareholders sacredly confidential, we are prevented from publishing names. Write to Metropolitan Trust & Savings Bank if you so desire.

AND THIS THE RESULT--SOME OF IT

How Co-operation Interests Intelligent People.

Cert.	Occupation.	Town.	State.	Amt.
6443	**Farmer**	**Mobile,**	**Ala.**	**$1000**
6442	**Insurance**	**St. Louis,**	**Mo.**	**1000**
5495		Kaneville,	Ill.	100
5485		York Haven,	Penn.	150
5466	Book-keeper,	Bonne Terre,	Mo.	100
5287		Oxford,	Mich.	100
5165		Pittsburg,	Penn.	100
5282	Tailor,	Cairo,	Ill.	100
5270	Mill-manager,	Kenio,	Ill.	100
5507	Retired Merchant,	St. Peter,	Minn.	100
5231	Promoter,	St. Louis,	Mo.	250
5062	Publisher,	St. Louis,	Mo.	250
5306		Del Roy,	Ohio.	150
5292	Druggist,	Coldwater,	Kan.	100
5263	Milliner,	Eau Claire,	Wis.	500
5411		Zanesville,	Ohio.	250
5019	Farming,	Bartlett,	Kans.	500
5571		Friday Harbor,	Wash.	100
5572	Farmer,	Aberdeen,	Wash.	500
5584	Manufacturer,	Centralia,	Wash.	100
5441	Farmer,	Wyndmere,	N. Dak.	140
5645		**Lake Charles,**	**La.**	**1000**
5621	Printer,	New Alexandria,	Ohio.	100
5632	Housekeeper,	Prairie du Sac,	Wis.	100
5837	Farming,	Nantucket,	Mass.	100
5613	Superintendent,	Martins Ferry,	Ohio.	500
5664	Delivery Clerk,	Chicago,	Ill.	100
5665	Carpenter,	Chicago,	Ill	100
5 74	Farming	Pana,	Ill.	100
5683		Merrill,	Iowa.	100
5685	Farming,	Searight,	Penn.	100
5687	Housewife,	West Paris,	Me.	100
5694	Railroad Agent,	Port Carbon,	Penn.	200
5697	Waiter,	St Louis,	Mo.	200
5703		Chicago,	Ill.	100
5723	Farming,	Faribault,	Minn.	100
6085	Stock Gauger,	Kern,	Cal.	250
5883	Salesman,	Philadelphia,	Pa.	300
5857	Physician,	Watch Hill,	R. I.	400
5888		San Francisco,	Cal.	250
5974	Housekeeper,	Kangley,	Ill.	400
6000	Clergyman,	Warm Spring,	Ore.	300
6105	Teacher,	Quaway,	Mich.	200
6121	Housekeeper,	Evansville,	Ind.	400
6251	Merchant,	Ellijay,	Ga.	500
6248		Toulon,	Ill.	500
6323	Electrician,	Troy,	Ohio.	500
6403	Pur. Agent, R. R.,	Perrysburg,	Ohio.	300
6437	Housekeeper,	Youngstown,	N. Y.	500
5497	Farmer,	Fairmount,	Ill.	600
5733	Manufacturer,	Meyersdale,	Pa.	300
5738	Dentist,	Hennepin,	Ill.	120
5744	Merchant,	Quaker Springs,	N. Y.	500
5745	Real Estate,	Quaker Springs,	N. Y.	250
5750	Farmer,	Newton Falls,	Ohio.	100
5751	Clerk,	Jane Lew,	W. Va.	500
5752	Farmer,	Braham,	Minn.	100
5767	Farmer,	Wheelersburg,	Ohio.	300
5775	Housekeeper,	Longwood,	Fla.	100
5610	Ranchman,	Meadow Creek,	Mont.	100

All these subscriptions and several thousand others ranging in amounts of $10 to $1000 (the greatest amount allowed to any one) were received in direct reply to our advertisement. Co-operation with but the smallest part of the country heard from—is a magnificent success. **Will You Share in Its Benefits and Profits ?**

ARE YOU WITH US?

Of course you are—if you give but half-way consideration to our plan (which is making millions for the millions in England, Germany, and France). The healthy, hearty enthusiasm as displayed in the few letters picked from several thousand received from our shareholders and customers is evidence that a truly CO-OPERATIVE store, supplying every need of the people in every country of the globe, is by all odds the most popular idea and best investment of the new century. **Subscribe To-day if but for One Share** while we offer to send our most interesting Book of Information FREE—don't wait for the book, but subscribe to-day. Now, before you lay aside this paper, and if after reading the book which we shall send you together with your certificate of stock, if you are dissatisfied with your investment for any reason whatever, we hereby guarantee to promptly refund money in full and cancel subscription.

For Quick Action Fill in this Remittance Blank and send in plain letter with P. O. Order, Express Order Check, or by Registered Mail if Currency.

Metropolitan Trust and Savings Bank, Dept. AA 345, Chicago, Illinois.
Corner Madison and LaSalle Streets.

GENTLEMEN:—I hereby subscribe for .... shares of the full paid, non-assessable, 7 per cent Preferred and fully participating stock of the **Cash Buyers' Union, First National Co-operative Society** at $10 per share. Enclosed find $ .... in payment of same. This stock is to be registered by you in my name and the stock certificates sent to me, and when so registered and sent to me you are authorized to turn over my money to the society If my subscription is received too late, the money is to be returned to me. It is understood that the society will promptly on demand refund my money if, after investigation, I am dissatisfied with my investment.

Name.. Street ....

Postoffice.. State ....

Long Tongues Valuable

South as well as North.

How Moore's strain of Italians roll in honey down in Texas.

Hutto, Tex., Nov. 19, 1902.

J. P. Moore.—Dear Sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens. Yours truly,

Henry Schmidt.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongued bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75c each; six, $4.00; dozen, $7.50. Select untested, $1.00 each; six, $5; dozen, $9.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

Victor's Superior Italians

go by return mail again. Owing to several large queen contracts, a contract for a *solid carload* of bees that went to Colorado, 85 three-frame nuclei to same State, numerous smaller orders for bees, and a good queen trade, it has been necessary for me to cut out my ad. for the past three months to keep from being swamped with orders. I am glad to notify my patrons that I am at last able to fill orders promptly with as fine queens as ever headed a colony, regardless of their source, at the following reasonable prices:

1 Untested queen, 75c; six, $4.00.
1 Select untested queen, 90c; six, $5.00.
1 Tested queen, $1.00; six, $6.00.
1 Select tested queen, $1.50; six, $8.50.

Breeders, $3 00 to $7.00 — these are as good as the best.

W. O. Victor, Wharton, Tex.
Queen-specialist.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5 00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

QUEENS FROM JAMAICA

ANY DAY IN THE YEAR AT THE FOLLOWING PRICES:

Untested, 66c; tested, $1.00; select tested, $1.50; breeders, $2 50. Our queens are reared from the very finest strains. Please write your address plainly when ordering. Address

Geo. W. Phillips, Sav-la-Mar P. O., Jamaica, W. I.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinos are bred for business. Tested queens, $1.50; $8.00 for 6; $15.00 per dozen. Untested, $1 00 each; $5 00 for 6; $9.00 per dozen. Our best and finest breeders, $5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. **ORDER** "The Southland Queen," $1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Geo. J. Vande Vord

Queen-breeder. **Daytonia, Fla.**

Money-making Queens

are those whose bees GET THE HONEY. Two of my customers have tested well on to 1000 QUEENS of my strain, and are buying more.

My queens in Cuba do extra well. They swarm but little, and get honey while others are starving in the summer, and make big yields in honey season. Several of the largest bee keepers claim they get better results from my strains than from any others.

Queens, 75 cts. each; dozen, $7 50. Selected, $1 00; six, $4.50. Warranted purely mated and good queens or replaced tested, $1.25. Select, $1.50 Extra, $2.00. Circular. **J. B. CASE, Port Orange, Fla.**

Your Last Chance for 1903

Red clover queens: Untested, 75 cents; tested, $1.00. Three incubators cheap, or will trade for bees.

G. Routzahn, - - - Biglerville, Pa.

For Sale—Thoroughbred Bloodhound Pups.

Best Strain in the South.

W. K. JAMES, - - Loudon, Tenn.

TWO ARTICLES

pretty nearly fill the BEE-KEEPER'S REVIEW for October. One is by R. L. Taylor on that old subject, "The Cellar Wintering of Bees." Of course, it is an old subject, but Mr. Taylor has the faculty of saying new things on old subjects as well as telling old things in a new way, and his five-page article pretty thoroughly covers the ground from the choice of a spot in which to build a cellar until the bees are taken out in the spring. By this way, his idea as to when bees should be taken out, is well worth considering and trying.

The other article is by the editor, occupies 10 pages, and is a pen and camera picture of California bee-keeping. Finer pictures (some of them full-page) of California bee-keeping have never been published. An especially beautiful view shows Rambler's old apiary near Los Angeles. In this article the editor tries to show up California bee-keeping as it really is—giving both lights and shadows.

Send ten cents for this issue, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, = Flint, Mich.

FARM LANDS

NET $1528.75 FROM ONE ACRE,

one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

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Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers.

THE NORTH-WESTERN LINE

Tourist Car Excursions

Pacific Coast

Daily and personally conducted excursions; choice of routes; low rates; diversified scenery; $6 for double berth in sleeping cars from Chicago; special attention to family parties.

The Best of Everything.

Books, maps and folders on application
to S. A. Hutchison, Excursion Manager,
212 Clark Street, Chicago, Ill.
NW80 Telephone, Central [illegible].

PAGE

THE SAVING

in posts, staples, and labor pays the difference in price, and then it lasts so much longer.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

FENCE! STRONGEST MADE. Bull Strong, Chicken-Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO.
Box 101, Winchester, Indiana, U. S. A.

4,000,000 PEACH-TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address J. C. HALE, Winchester, Tenn.

450,000 TREES

200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

Envelopes!!

Printed to Order $1 per 1000

Heavy, white, high-cut, size 6¾. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once

Howard Co., 516 Masonic Temple, Chicago, Ills.
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SPECIAL NOTICE

Special Notices By Our Business Manager

COLD-FRAME SASH.

We are prepared to furnish these, made of pine or cypress, for either 8 or 11 inch glass, at 80 cts. each, $3.75 for 5, or $7.00 for 10, shipped K. D. The pine sash have side bars 3½ inches wide by 6 ft. long. The cypress sash have 2½-inch side-bars full 1½ in. thick, and only 3 feet 3 in. wide.

GLASS, 8x10.

We have quite a stock of 8x10 glass for sash, which we offer at $2.75 per box; 5 boxes, $13; 10 boxes or more at $2.50 per box. This is a special low price, below what some of it cost us, but in keeping with the present market price.

HONEY MARKET.

We are having a fair trade in honey at good prices, compared with what it is bringing in some markets. Fancy comb goes off best of anything. Extracted and the lower grades of comb sell more slowly. We have a good stock of extracted on hand, and a more limited supply of comb.

BUSHEL BASKETS.

We have in stock a few dozen oak-splint bushel baskets, such as we formerly listed in our department-store catalog. These we offer, while they last, for the common lap-splint kind, 3 for 60 cts.; 6 for $1.10, or 12 for $2.00. For the genuine Briggs basket, which will hold grain, 3 for 75 cts.; 6 for $1.40, 12 for $2.75.

EARLY-ORDER DISCOUNTS.

Remember the discount for cash orders this month is 6 per cent from present catalog prices, which are higher on some things than printed in our last catalog. Quite a good many have taken advantage of this discount, and have sent us liberal orders for next season. If you know what you need for next season, and can raise the money to pay for it, it is much to your advantage to order now, securing the liberal discount as well as getting the material on hand ready to put up and get ready for use while you have the leisure time in the winter.

BUSHEL CRATES.

In working up so much basswood lumber into sections, etc. we get a quantity of material of a grade not quite good enough for sections, but which makes suitable slats for bushel boxes. We have accumulated quite a stock of all-slatted boxes, put up 14 in a crate, 2 nailed, 12 knocked down, and nails included to put them together. Owing to increased cost of lumber we had marked our prices up to $2.10 per crate; but we will continue the old price, $1.90, for a while, to work off some of the present stock. A good deal of this stock is put up with oak corners and bottom end crosspiece, which receive the nails. This makes a very strong and durable crate. The slats are not rough-sawn, like the ordinary cheap crate, but are smooth.

CHICAGO BRANCH.

We call attention to an announcement in another column of a change in our Chicago agency. Some years ago, when we bought out the supply business of Thos. G. Newman it was continued for several years in the name of The A. I. Root Co., with Mr. George W. York as manager. Later Mr. York took over the supplies and conducted it in his name. Now we take the business and stock on hand back again, and will hereafter conduct it in our name. Mr. York still remains in the office with the *American Bee Journal* for the present. Mr. L. W. Boyden, a brother of our secretary, is taking charge under the direction of this office, and with Mr. York at hand for advice and consultation. For over twenty years Mr. York has worked in connection with the bee-supply business — first under Mr. Newman, and later under his own direction. He has been an indefatigable worker. In connection with the editing of the *American Bee Journal*, which comes out weekly on time as regular as clockwork, he has accomplished an amount of work that few would survive under. After so many years of unremitting toil he desires some relief, and therefore relinquishes the supply business, still retaining the *Bee Journal.*

Special Notices by A. I. Root.

GROWING ONIONS TO BUNCH UP—OUR FIVE-CENT BOOK.

This little book is finally ready, and it is more of an onion book than we at first expected to make it. Everybody who grows onions, *especially* those who start onions under glass, can afford to invest *five cents* in our new onion-book.

AT THE CABIN IN THE WOODS ONCE MORE.

I have been changing about so much lately that I do not know but it may bother some of the friends to know just where I am "at" a great deal of the time. In fact, our good pastor has been nicknaming me "globe-trotter." I do not know but he feels a little like complaining because I am not on hand more of the time to hear his excellent sermons, and to question him, as I usually do, about them afterward. Well, next Monday morning, Oct. 12, Mrs. Root and I start once more for the cabin, or, as our youngest daughter will have it, our "cottage" in the woods. We shall be there about two weeks while I dig my seed-potatoes and ship them down to Medina; and then I expect to be here in Medina quite a little spell unless God in his wisdom calls me elsewhere.

FOR SALE.—Extra fine white clover honey, both comb and extracted. Write for special price
JOHN A. THORNTON Rt. 1, Ursa, Ill.

FOR SALE.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—A choice lot of extracted buckwheat honey, at 6½ cents, put up in kegs holding about 163 lbs. E. W. ALEXANDER & SON,
Delanson, Schenectady Co., N. Y.

FOR SALE.—Choice alfalfa honey, in 60-lb. cans. Prices quoted on application.
W. P. MORLEY, Las Animas, Col.

FOR SALE.—4000 lbs. of comb honey in 24-lb. glass-front shipping-cases; well sorted and graded, clean and good. OLIVER SEATON, Ladd, Bureau Co., Ill.

FOR SALE.—Extracted honey, amber, 5½ up; light 7 up. Several size packages. Samples, 10 cts.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Extracted honey. Mail sample and lowest price; also fancy and No. 1 comb honey; must be in no-drip shipping-cases. We pay cash.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.
THOS. C. STANLEY & SON,
Fairfield, Ill., or Manzanola, Colo.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH. BECKER & Co., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer, SEAVEY & FLARSHEIM,
1318—1324 Union Avenue, Kansas City, Mo.

Finest Grades Extracted Honey for Sale!

Three kinds, clover, celandine, and buckwheat. Prices from 5½ to 9 c. per lb., according to kind and quantity wanted. This honey is better ripened than any comb honey on the market. Extracts from letters from some good judges:

Bell Branch, Mich., Oct. 9, 1903.

O. H. Townsend, Otsego, Mich.

Dear Sir:—Yours received, and the honey is very fine. In fact it is the best that we have received samples from this year. M. H. HUNT & SON.

Sample of honey is received, and the quality is superb. WALTER S. POUDER.
512 Mass. Ave., Indianapolis, Ind.

Good enough for a king. A. V. BISHOP & Co.,
119 Buffalo St., Milwaukee, Wis.

A four-drachm sample of either kind of this honey sent by mail for six cents. Address

O. H. Townsend, Otsego, Mich.

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Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
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Squabs are raised in 1 month, bring *big prices.* Eager market. Money-makers for poultrymen, farmers, women. Here is *something worth looking into.* Send for our **Free Book,** "How to Make Money With Squabs" and learn this rich industry. Address
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Sections, Shipping Cases, Honey Cases,

and every thing necessary for the bee keeper.

FINE ITALIAN QUEENS.

Prompt shipping. Catalog Free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street.

Wants and Exchange.

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell fine job-printing outfit, nearly new. J. W. STEBBINS, Broad Creek, Va.

WANTED.—2d-hand shallow-frame hives cheap for cash. E. BRUBAKER, 14 N. 3d St., Phila., Pa.

WANTED.—To sell Brown Leghorn cockerels. Circular. H. M. MOYER, Rt. 2, Bechtelsville, Pa.

WANTED.—To sell 75 colonies bees in good shape; will sell cheap. G. P. COOPER, Pikeville, Tenn.

WANTED.—The address of all who are still in need of cartons. QUIRIN-THE-QUEEN-BREEDER.
Parkertown, Ohio.

WANTED.—An apiary on shares; am experienced and reliable; South preferred.
C. S. DOWNER, South Haven, Mich.

WANTED.—You to read the adv't of ginseng on page 781, Sept. 1. For prices address
A. P. YOUNG, Cave City, Ky.

WANTED.—Sourwood comb and extracted honey. State grade and price.
W. A. DUNLAP, Dunlap, N. C.

WANTED.—To sell Water Spaniel puppies, six months old; quality high, price low.
MT. SAFFORD FARM, Salem, N. Y.

WANTED.—To correspond with parties having apiaries for sale in Southern California, or Maricopa County, Arizona. WM. PEARSON, Colfax, Iowa.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass.

WANTED.—To sell half interest in my apiary, pineapple and orange plantation. Good apiarist will have exclusive charge. D. DALY, La Gloria, Cuba.

WANTED.—To buy quantity lots of choice white-clover comb and extracted honey. Price must be low. B. WALKER, Clyde, Ill.

WANTED.—To buy a few cases of extracted sage and alfalfa honey; state price and quantity.
H. VOGELER, New Castle, Cal.

WANTED.—To exchange a two hundred-egg Reliable incubator, been used very little, for choice comb or extracted honey. CHAS. KOEPPEN,
Fredericksburg, Va.

WANTED.—To exchange an incubator-tank, and a safety lamp for an incubator of 200-egg capacity, for a trio of minorcas or a pure-bred Angora Billy-goat. MRS. C. A. HULTQUIST, Brookhaven, Miss.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell full colonies Italian bees in 8 or 10 frame Dov'd hives, with plenty of honey to winter, $5.00 each; in lots of 25, $4.50 each.
F. A. GRAY, Redwood Falls, Minn.

WANTED.—To sell 75 colonies bees in ten-frame hives. No failures; good location; Northern community; good local trade; no opposition. $200 cash buys the outfit; good reasons for selling.
K. B. MORRIS, Box 106, Chadbourn, N. C.

WANTED.—Assistant lady bee keeper, one that is strong, and willing to assist wife at housework when not with the bees. A long job, pleasant home, and good wages.
Address Box 2, Buckeye, Arizona.

WANTED.—To sell 100 hives of bees in eight-frame Chaff hives with tin roofs, inside room for two supers, all complete, for $3.00 a hive where they stand.
CATHARINE McCASLIN,
308 Pittsburg St., New Castle, Pa.

WANTED.—To sell. Having lost my wife, will sell 30 acres of land and 50 or 75 stands of bees in eight-frame hives; best location in the county. Write for particulars and price at once.
F. D. ANDREWS. Box 88, Walsenburg, Colo.

WANTED.—100 ten-frame extracting-supers, 10 ten-frame deep supers for comb honey, or 1000 shallow extracting-frames, all in the flat; all new, or second-hand in good condition.
W. H. COLLIER, Clarkson, Texas.

WANTED.—One or two tons of honey, 4×5 sections preferred, but can use other sizes correspondence solicited, giving lowest cash price, etc.; and to parties not living too far away in this State, if favorable, I will call on them. A. W. SMITH, Birmingham, Mich.

WANTED.—An experienced and trustworthy dairyman and farmer, with two grown boys, to milk and care for 40 cows; stable has cement floor, and water-basin in each stall; milking hours, 4:30 A.M. and 2 P. M. Wages $800 per year with house-rent and garden. When answering this ad. state your experience in dairying, and give references; state age, and age of members of family. J. P. WATTS, Kermoor, Pa.

WANTED.—To sell apiarian outfit in good honey country in Minnesota. Raspberry, plum, white clover, willow-herb, basswood, and goldenrod. 220 colonies of Italians; 400 supers, 2 extractors, and all necessary appliances. Also buggy, Barnes saw, and honey-house 12x24, built in sections. Also use of house till April next. Bees all in good condition for wintering. What offers?
Write X Y Z, GLEANINGS, Medina, O.

PAGE & LYON,

New London, Wisconsin.

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AND DEALERS IN . . .

BEE-KEEPERS
SUPPLIES. . .

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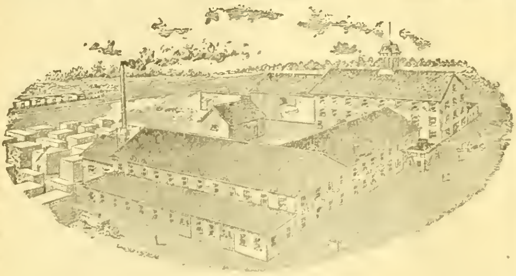
Catalog and Price List . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order Office at Wetumpka, Alabama.



Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE-SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

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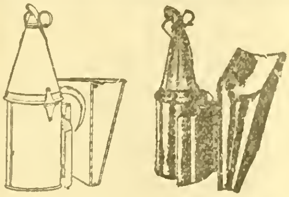
Shugart & Ouren, Council Bluffs, Iowa,
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

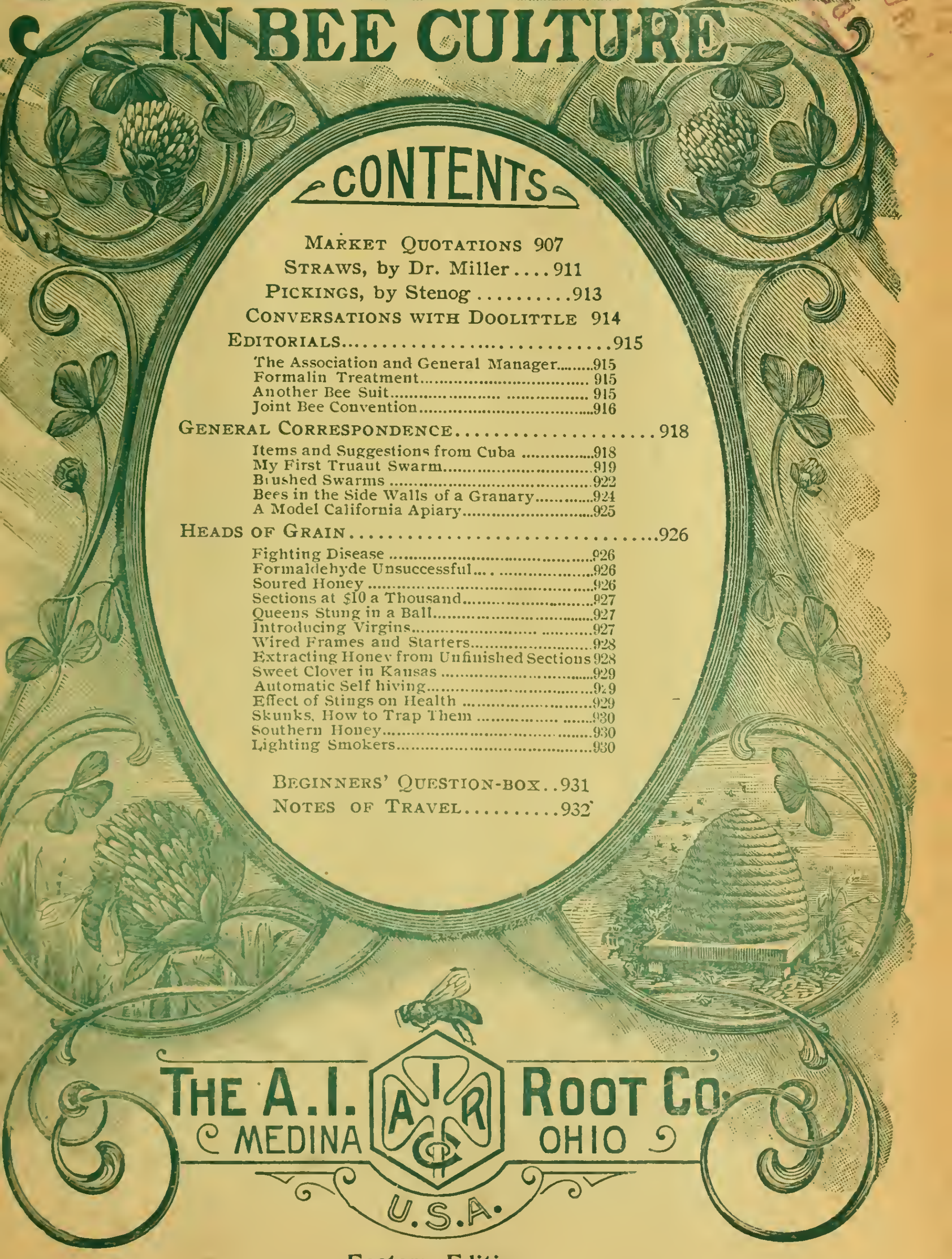
Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire. Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Volume XXXI NOVEMBER 1 1903 Number 21

GLEANINGS IN BEE CULTURE



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MEDINA OHIO
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Eastern Edition.

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Until you see our 43d annual catalog. We've a carload of Root's Goods, and supply many goods not advertised in our catalog.

Root's Sections, Weed's New Process Foundation a Specialty.

We can supply these goods at their prices, and thereby save you valuable time and heavy freight charges. Bees, queens, and nucleus colonies from the very best strains in America. A 32-page illustrated catalog free.

W. W. CARY & SON,
Lyonsville, Massachusetts.

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is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-Keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

E. GRAINGER & CO.
12 Yonge Street Arcade.

Special Notice to Bee-keepers!

BOSTON

Money in Bees for You.
Catalog Price on

ROOT'S SUPPLIES

Catalog for the Asking.

F. H. Farmer, 182 Friend St., Boston, Mass.
Up First Flight.

Northeastern
and
New England

Bee-Keepers!

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. MASON,
Mechanic Falls, : Maine.
Manager The A. I. Root Co.'s N. E. Agency.

A Neat Package Finds a Ready Buyer.

Pack your honey in the Non-drip Cases made by The A. I. Root Co.; sold in MICHIGAN by

M. H. Hunt & Son,
Bell Branch, Mich.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The demand for honey is a little better. The prices rule about the same Extracted is sold as follows: Amber, in barrels, 5@5½—in cans, about ½c more: water-white alfalfa, 6@6½; white clover, 6½@7½. The comb-honey market is quite lively, and sells as follows: Fancy water-white, 14@15 Beeswax is in good demand, and I will now pay 30c delivered here. C. H. W. WEBER,
Oct. 21. 2146 S Central Ave., Cincinnati, Ohio.

CHICAGO.—Sales are not frequent, with No. 1 to fancy white comb honey bringing 13@14 To obtain 13½@14 it has to be perfect, and in sections that will not weigh over 14 to 15 oz. Sections that weigh 16 oz. and over have to be sold at from 1 to 3 cts. per lb less. Extracted white sells at 6@7 in barrels; 6½@7½ in cans according to quality. Beeswax, 28@30.
R. A. BURNETT & Co.,
Oct. 21. 199 South Water St, Chicago.

ALBANY.—Honey receipts are increasing somewhat; and prices, while not changed from our last, are rather easier, or are full high for free consumption We quote fancy comb, 16; A No. 1, 1 @15½; No 1, 15; No. 2, 14@14½. Buckwheat, 13½@14. buckwheat is in light receipt, and sought after. Extracted is unchanged. Light, 7@7½. Amber, 6½@7; dark, 6@6½ Beeswax, 29@30. MACDOUGAL & Co.,
Oct. 23. Albany, N. Y.

KANSAS CITY.—Receipts of comb honey are good, demand brisk, market easier. Some receipts of extracted with light demand. We quote fancy white comb, 24 sections in case $3 00; No. 1 white and amber comb, 21 sections to the case, $2 75; No. 2 white and amber, $2 50. Extracted white, per lb., 7; extracted amber, 5@6. Beeswax, 25@30.
C. C. CLEMONS & Co.,
Oct. 23. Kansas City, Mo.

TORONTO.—Prices on honey here remain about the same; a little more demand, especially for good comb honey; apparently not a great deal of extracted honey exchanging hands at present. Comb honey in sections, per dozen, $1.40 to $1.75, according to quality. Extracted, best quality of white clover and basswood, 6½@8 c; darker grades and mixed, 5@6 wholesale. Comb honey retails from 15@25c, according to quality. Extracted, best quality in 5 and 10 lb. cans, retails at 9 @ 10c per lb.; darker at 8.
Oct. 17. E. GRAINGER & Co., Toronto, Ont.

DENVER.—No. 1 white comb honey, $2.75@3.00 per case of 24 sections. No. 2, ditto, $2 40 @ 2.50 per case. White extracted honey, 7@7½ cts. per lb. Beeswax wanted at 22@26 cts. according to color and cleanliness.
COLORADO HONEY-PRODUCERS' ASSOCIATION,
Oct. 23. 1440 Market St., Denver.

SCHENECTADY.—Honey continues to sell freely at following prices: Fancy white in paper cartons, 16; No 1, 15; No 2 11 to 14½; buckwheat, 13@14; the latter is not plentiful. Extracted, light 6½@7½; dark, 6@6½. CHAS. MCMULLOCH,
Oct. 21. Schenectady, N. Y.

SAN FRANCISCO.—New comb, white, 12@13 light amber. 11@12. Extracted, water-white, 6@6½; light amber, 5½@6; dark amber, nominal. Beeswax, 30c.
ERNEST B. SCHAEFFLE,
Oct. 13. Murphys, Cal.

TOLEDO.—The honey market shows no change since our last quotations; the demand is fair, and promises to increase as the cool weather comes on; the receipts are not heavy, as bee-keepers seem to be holding their crops for better prices. GRIGGS BROTHERS,
Oct. 21. 214 Jackson Ave., Toledo, O.

FOR SALE.—6000 lbs. choice ripe clover honey, new; 60-lb. cans. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Fancy basswood and white-clover honey: 60-lb cans, 8c; 2 cans or more, 7½c; bbls., 7½c.
E R. PAHL & Co., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fancy and A No. 1 comb honey from alfalfa, in Danzenbaker 4 x 5 sections. Write for prices. WM. MORRIS, Route 1, Las Animas, Col.

FOR SALE.—5000 lbs. of fine comb and extracted honey, mostly all comb. L. WERNER,
Box 387. Edwardsville, Ill.

FOR SALE.—Three tons comb honey, in 4x5 sections, put up in glass-front cases.
J. I. CHENOWETH, Albia, Iowa.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y

FOR SALE.—White-clover extracted honey, guaranteed finest quality, at 8¼ cts., in cases of one 58-lb. can; at 9 cts. in cases of 12 5-lb. friction-top pails, and in cases of 24 2½-lb. friction-top cans. Fall amber honey at 7 cts. in 58-lb. cans Samples, 10 cts. each.
R. & E. C. PORTER, Lewistown, Ill.

FOR SALE.—Extracted choice ripe clover honey in cases of two 60-lb. cans each, at 8 cts. per lb.; 335-lb. bbls. at 7½ cts per lb.
G W. WILSON, R. F. D. No. 1, Viola, Wis.

FOR SALE.—Extracted honey, amber, 5½ up; light 7 up Several size packages. Samples, 10 cts.
I. J STRINGHAM, 105 Park Place, New York.

WANTED.—White-clover extracted honey.
C. G. TURNER, Mechanic Falls, Me.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Extracted honey. Mail sample and lowest price; also fancy and No. 1 comb honey; must be in no-drip shipping-cases. We pay cash.
CHAS KOEPPEN, Fredericksburg Va.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c We are in the market for either local or car lots of comb honey. Write us. EVANS & TURNER,
Columbus, Ohio.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot State also how packed.
THOS. C. STANLEY & SON,
Fairfield, Ill., or Manzanola, Colo.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM,
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HONEY JARS

1-lb. sq. jars with corks......$5.00 gross
2-lb. sq. jars with corks......$7.40 gross
Eagle or No. 25....................$5.75 "
Nickel Cap jar, holds 13 oz. $5.50 "

The last is a fancy jar, and makes a fine package for exhibition. Discount on quantities of jars; the larger the quantity the lower the price. Catalog describing honey-packages, shipping-cases, cartons, bee-hives, bees, and every thing a bee-keeper uses, mailed upon application.

Tested Italian Queens, $1.00; Untested, 75 cts.

I. J. STRINGHAM,
Apiaries, Glen Cove, L. I. **105 Park Place, New York.**

The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for new catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

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W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

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George W. York & Company
144, 146 East Erie,
Chicago, : : Illinois.

Root's Goods in Chicago

The business for many years conducted by George W. York & Co., at 144 East Erie Street, as agent for The A. I. Root Company's supplies, is this day transferred to The A. I. Root Company to be conducted as a Branch Office. All outstanding accounts will be paid George W. York & Co

The policy of the Branch House will not be changed. We shall continue to serve the interests of bee-keepers to the best of our ability, and to increase our facilities whenever possible for such service. Mr. York will still be in the same office with us, and the benefit of his years of experience with this trade will thus be available.

Please note change of name to avoid confusion in our work.

Oct. 1, 1903. **The A. I. Root Co.**

All orders, remittances, inquiries, etc., should be addressed to The A. I. Root Company, 144 East Erie Street, instead of George W. York & Co.

Statement by Geo. W. York & Co.

To Our Customers and Friends:

In transferring back to The A. I. Root Company the bee-supply business which we took over from them some years ago, we do so with regret, as we have labored hard to build up a large and honorable trade in bee-appliances, and value beyond expression the valuable patronage accorded us during the years. We trust the same will be continued to our successors in the business.

Please note that this transfer does not in any wise affect our publishing the American Bee Journal, or handling bee-books and queens. But we expect from now on to be able to devote more time to the Bee Journal, as for years we have had "too many irons in the fire" to give it the attention it requires.

GEORGE W. YORK & CO.
Chicago, Ill., Oct. 1, 1903.

Marshfield Manufacturing Co.

Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

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RETAIL AND WHOLESALE.

This foundation is made by a process that produces the superior of any. It is the cleanest and purest. It has the brightest color and sweetest odor. It is the most transparent, because it has the thinnest base. It is tough, clear as crystal, and gives more sheets to the pound than any other make. **Working Wax into Foundation for Cash a Specialty. Beeswax Always Wanted at Highest Price.** Catalog giving full line of supplies, with prices and samples, free on application.

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WANTED! Fancy Comb Honey

In No-drip shipping cases. Also, Amber extracted, in barrels or cans. Quote your best price delivered Cincinnati.

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Five Per Cent Discount
During November.

Send for our List, and order now. Take advantage of this Discount.
Have your goods on hand ready for use.

Just Think of It!

If all of the sections we sold last season were placed, unfolded, in a straight line the line would reach Three Thousand Five Hundred Miles.

Perfect Workmanship and Finest Material.
All parts of our Hives are made to Fit Accurately.
No trouble in setting them up.
Our customers say it is a pleasure.
We are not selling goods on NAME ONLY,
But on their Quality.

G. B. LEWIS COMPANY,
Manufacturers Bee-keepers' Supplies,
Watertown, Wisconsin, U. S. A.

Let Me
Sell or Buy Your Honey

If you have some to offer, mail sample with lowest price expected, delivered in Cincinnati.
If in Need state quality and kind wanted, and I will quote you price. We do business on the cash basis in buying or selling.

Full Stock of Bee-supplies, the best made.
Root's Goods at Their Factory Prices.
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C. H. W. WEBER, CINCINNATI, OHIO.
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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. $1.00 PER YEAR MEDINA, OHIO.

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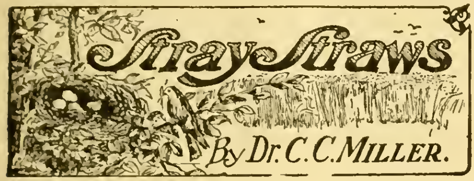


Stray Straws

By Dr. C. C. Miller.

HYBRID bees are not necessarily high-bred bees.

MEMBERSHIP of the National has now passed the 1500 mark. Whoop! [This is good news, and I suppose many of the bee-journal readers have not noticed it.—ED.]

WISCONSIN, it seems, is still a savage country, for reports are given in the *American Bee Journal* of bears in Clark County making raids into apiaries. However wild the State may be, Gen. Manager France, who lives in it, seems quite civilized — at least he ate with a knife and fork when in California.

LET ME SUGGEST that those who use stands with legs set each leg on a half-brick or flat stone to make them last longer. In the South, where ants are bad, the proper thing will be to set them in cans filled with oil or water. [Yes, using a flat stone or brick under the legs is the intention.—ED.]

COMPLAINT is made of a falling-off in bee culture in Germany, France, and Italy, the number of colonies having greatly diminished. But A. Alberti says in *Bienen Zuechter* that in his locality the falling-off is more apparent than real; for, notwithstanding the smaller number of colonies now kept, ten times as much honey is produced as 25 years ago, thanks to advanced methods, and especially to movable-comb hives.

IT WILL HARDLY DO to pin one's faith to formaldehyde. Another failure is reported in *American Bee Journal*. N. E. France treated 200 combs, "using double Weber's amount of gas or formalin, Weber's lamp, etc. All were afterward put in clean hives and bees put on them. Every colony became re-diseased." [Reports are coming in rather thick and fast now, showing failures in the use of formaldehyde. It is evident that the gas should be made much stronger than has been hitherto advocated, to do the work thoroughly.—ED.]

ADMITTING that Mr. J. M Gibbs chilled brood by taking away drones, p. 881, would he not have gained by replacing those drones with an equal weight of workers? It isn't a question whether drones produce heat, but will they produce more than the same weight of workers? and does it pay to keep them as heat-producers alone, when workers will produce just as much heat and do something else besides? [See answer to another Straw on this subject.—ED.]

THE *American Bee Journal* for Oct. 15th was mailed two days behind time, the first time that paper was late for 20 years! A printers' strike made the delay. The Old Reliable has been so regular that you could tell the day of the week by its arrival. George W. doesn't intend to have it late for another twenty years. [The record up to the time of the strike was remarkable. Mr. York and his predecessor during the time are to be congratulated. May the Old Reliable continue to break the record for another twenty years.—ED.]

BRO. DOOLITTLE is gratifyingly explicit in his instructions usually; but on page 874 there seems to be an omission. He hives a swarm on half-inch starters, contracting in a day or two with dummies, but he doesn't say just *when* these dummies are taken out, nor what replaces them. It *looks* as if the bees built *all* the combs on those half-inch starters; but I've always understood that, after four or five frames were filled, foundation or drawn comb must be given if drone comb was to be avoided. How is that? [Mr. Doolittle will kindly explain.—ED.]

PH. KRÆMER reports in *Elsass-Loth. B. Zuechter* success in marking queens. Holding the queen between the thumb and finger, he paints the back of the thorax bright yellow, leaves the queen caged between the combs a few hours until the paint dries, then when the queen is freed the color remains permanent, making it easy to find her by a mere glance. [This is a valuable kink *if* we can get some dye, paint, or coloring-matter that will be permanent. I question very much if any thing could be found that would answer the purpose. But wouldn't white be better than yellow, as the contrast would be stronger?—Ed.]

I suspect that it is a mistake not to give a puff of smoke at the entrance on opening a hive, if smoke be needed at all. The guards at the entrance are the ones on the lookout against intruders, and the least jarring of the hive, as in removing the cover, will start them on the war-path. An initial puff of smoke at the entrance will save stings, and I *think* it will save smoke. [Perhaps you are right; but our imported stock has been so gentle that we have rarely found it necessary to blow any smoke in at the entrance. I remember that a large number of your bees are hybrids, or on the hybrid order, and it is very reasonable to suppose that a puff of smoke at the entrance would be quite a necessary precaution.—Ed.]

"Is it not possible that, during hot weather or the swarming season, the drones help to increase the heat so that comb-building may fairly progress?" quoth ye editor, page 872. Surely, a pound of drones will get up a lot of heat; but a pound of workers will get up just as much, and the workers are worth something besides. [Yes, that is true; but suppose the hive has lots of drones in it, and there are no other bees to take their place to supply the necessary heat. You certainly would not then trap them all out when the bees were doing heavy work storing, and bringing in five times as much honey as the drones consume. I grant that good management should keep them down, and have workers reared instead. But remember that Mr. M. W. Shepherd, page 841, says that his bees rear drone comb on worker foundation. They will rear some drone comb for all of us in spite of us. Well, I suppose you would go over all the hives and cut out every portion of drone comb early in the season.—Ed.]

You speak, Mr. Editor, p. 878, of "the usual characteristic ball of bees" found on the ground with the clipped queen of a swarm. Do you generally find such a ball of bees in Medina? We've had swarms with clipped queens for many years, and in "this locality" not one case in twenty will have such a ball. [It just occurs to me that, inasmuch as you referred to this very matter some time ago, in a similar way, you misunderstood what I meant by "the ball of bees." I did not mean the kind that is attacking the queen—oh, no!—just a little peaceable cluster that congregates around their mother, rejoicing that they have found her. There are a few stragglers in a swarm that are looking for the queen. It is these bees, if she be crawling in the grass around the hive, that will find her. It is much easier to see a little cluster of bees than a single individual queen in the grass. I just referred the matter to our Mr. Phillips, who has had large experience in the production of honey in Jamaica, and who has worked for us a who year. In both localities he said he was the habit of finding the clipped queen by the cluster of bees around her.—Ed.]

Locality has had nearly every thing laid to it, and now it is crossness of bees. At Los Angeles Mr. Delano told of moving half his apiary to a different location where they were terribly cross, those remaining not being cross, although all of the same blood. Frank McNay gave a still more striking instance. He moved some bees some miles away, and while there they were so cross it was almost impossible to handle them. On moving them back to the old place they were as gentle as the others. [I thought the bees at one of Frank McNay's apiaries were about as cross as any I had ever seen. If this is the yard where they were peaceable, I wonder what they were at the other place referred to. But, say—I do not quite see why locality should affect the temperament unless it should be of such a character as that the secretion of nectar would stop suddenly, in which case the bees would be cross immediately thereafter.—Ed.]

"It should require no argument to show that bees successfully wintered in the cellar are better able to bear the rough weather of early spring than bees that have suffered all the rigors of the entire winter out of doors." This I quote from the *Bee-keepers' Review*, spoken of bees successfully wintered and not diseased, and I set it up for some one to knock over—if he can. I am anxious to believe it; and it's spoken by a man who knows a good bit about wintering bees—Hon. R. L. Taylor. [Like yourself, I *want* to believe that Mr. Taylor is right; but I am afraid he may not be, for we have had reports from bee-keepers who used the two methods side by side, some of whom have said that, while their outdoor bees used more stores, they were more vigorous in spring. We have been wintering by the two plans side by side, with this difference—that weak colonies were put in the cellar, and the stronger ones outdoors. This winter we will try to make a more exact report for next season. I know this—that indoor colonies consume less stores; and if in spring they are just as good, it is high time we recognized the fact and acted upon it; for what would be the use of throwing away from one fourth to one-third of the stores every winter, where feeding has to be resorted to?—Ed.]

Thinking it over carefully, I'm inclined to lean toward the belief that *entire* control of fertilization might be a loss rather than a gain. If I can have control of the colonies that rear drones in my own and neighboring colonies, I believe that's all the control I want. In the mad chase after the virgin queen in the upper blue, the best man will win. If the choice were left to me I'm afraid I'd make a bungle. [I am not sure but you are right. Even if we could mate successfully in a big tent, there are some hand-picked drones, apparently good lusty fellows, that would make poor progenitors. It is getting to be the practice nowadays to rear drones almost exclusively from one or two choice queens in a queen-rearing yard, then kill off the useless ones, or keep them from developing. By so doing, don't we nearly control the parentage on both sides? And if the drone with the greatest wing power is the best man, possibly he is strongest in other ways. In one of our yards during the past summer, the major part of our drones were reared from one queen—a queen whose bees made a big record in honey a year ago. The virgins of that same yard were reared from other queens whose bees did equally well. I had not thought of it before; but it strikes me the plan comes pretty near being equal to the "tent" plan of mating; for suppose we had a mammoth tent in successful operation, we would turn those same drones loose into that same tent. Perhaps the really best man might weary himself to death to get out, leaving his less active inferior brother to perform the service. The question hinges down to this: Would hand-picked drones be better than nature-picked drones? Nature works on the "survival of the fittest," and that plan has been working for thousands of years.—Ed.]

Pickings from Our Neighbors' Fields
BY
"Stenog."

No more, with hissing shot and shell,
  Do we our claims arrange;
In London halls we talk it o'er
  And quickly make the change.

No lives are lost, no honor marred,
  No great expense incurred;
The reign of Peace is coming in—
  Her heavenly voice is heard.

* * *

My thanks are due to Hon. Eugene Secor for a copy of his home paper containing a poem from his pen in eulogy of the press. It is thoroughly good, and is especially interesting to those of us whose lives are spent in manipulating the said piece of machinery. It is pleasing to find an intensely busy and practical man like Mr. Secor who can at times devote himself to innocent rambles in the world of fancy, and thus soften the dull monotony of the eternal grind by spanning it with the poet's rainbow.

It will be remembered by most of the readers of this journal that Mr. Secor is the poet-laureate of the bee-keeping host.

BRITISH BEE JOURNAL.

Mr. L. S. Crawshaw, of Ilkley, Eng., offers a few interesting remarks on the pronunciation of the common word *proplis*. He concludes, after offering much testimony, that it should be called *pro*-po·lis and not *prop*·o-lis. He also decides that we should speak of the Li-*gu*-ri-an bee and not Lig-u-*ree*-an; of the *Cyp*-ri·an and not *Cy*-pri-an. *Chitine*, he thinks, should be called *ki*-tin, not *kit*-in. His conclusions are good.

* * *

A writer asks if bees, prior to sealing over their honey, deposit in their cells a substance of a preservative nature, capable of keeping the honey in a sound condition for an almost unlimited period. The editor says:

> It is perfectly certain that a salivary secretion is added by the bees to the nectar gathered from flowers, and this secretion affects the chemical change in the product which converts it into honey in the full sense of the term. Indeed, nectar is not honey until this change has been brought about by the action of the bee. We rather think that the "substance of a preservative nature" of which you have heard is believed by your informant to be formic acid; but this idea is a myth, and has no foundation in fact; nor is it true that any thing is added by the bee just before sealing the cell, which preserves the honey for all time. In fact, it is known that if honey is not well ripened—that is, all superfluous moisture evaporated—it will not keep for any great length of time.

* * *

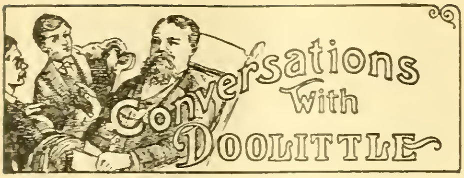
A fine view of the apiary of Mr. Thomas Evans, Waddeson, England, appears in the issue for Oct. 1st. The following lines from his pen will be of interest, I think, showing as they do that some people in England can bite a raisin in two on the score of economy as well as here:

> I follow the occupation of a gardener, but for the last twelve years I have tended the bees of the late Baron F. de Rothschild. I am always ready to lend a helping hand to my fellow bee-keepers; and should any of these pass my way I should be pleased to receive a call from them. In the "driving' season I scour the country around for miles, driving bees to save them from the sulphur-pit, and bring them home on my bicycle.
>
> There are no big takes of honey in this district, like those I read of in other parts of the country. Perhaps the locality is more suitable for the rearing of ducks than for honey-raising. Nor is the demand for honey very large in these parts. For instance, one of my customers (a lady who keeps her hunter) requested me to supply her with "half a section of honey." As it is not my custom to sell split sections I hardly need say this large order was politely refused.

* * *

SOUTHLAND QUEEN.

This journal comes regularly, and presents a fine appearance. It is well worthy of the support now accorded it, and more too. In the issue for September, Mr. J. E. Chambers, in speaking about bees embalming dead mice, wades into the editor of Gleanings roughly for doubting that they do, and says he is glad he is not an editor if editors know no more about the case in point than that. He says he has found dead rats in hollow trees, completely covered with propolis. Mr. Atchley adds that he once found an opossom completely covered in the same way. The whole question, however, hinged on what bees would do in *a common hive*, and here E. R. R. freely admitted he did not know, but was ready for evidence.



ITALIAN BEES NOT WORKING IN SECTIONS.

"I understand that you keep the Italian bee, Mr. Doolittle. Is this correct?"

"Yes, I have kept the Italian bee ever since 1872, and like them very much."

"Do you never have trouble by their not entering the sections to work therein?"

"Not of late years. Before I fully understood their habits I did somewhat."

"Do you think they enter the sections as readily as do the black bees?"

"Probably not quite so much so. But I have no reason to complain along this line. Do you have trouble with them?"

"Yes. I have had Italian bees for the past two years, and they have not done half as well in the sections as the blacks; but for extracted honey they exceed the blacks by quite a little. What do you suppose is the cause of this, and what course shall I pursue?"

"How many colonies of Italian bees have you?"

"Only two, one of which I have worked for section honey and the other for extracted honey."

"If you have tried only one colony of Italian bees for comb honey, it is not so strange that you have not succeeded. But before we talk further, allow me to ask how large a hive you use."

"I use the ten-frame Langstroth hive."

"Do you leave all of the ten frames in that hive when the sections are on?"

"Yes. Why not?"

"One important point in the construction of a hive for comb honey where Italian bees are used should not be overlooked; and that is, the brood-chamber should not be too large. Had you used only seven combs in your hive after the honey-flow had begun, and your sections were put on, you might have secured a yield from that colony of Italians that would have eclipsed any thing done by any of your colonies of black bees, the same as you did with the other that you worked for extracted honey."

"What does the smaller brood-chamber have to do with the matter?"

"Italians are more prone to store honey in the brood-chamber than the blacks. Especially do they show a preference toward storing in the brood-chamber rather than in the sections, if the queen does not have the combs occupied with brood when the honey season commences: and if they have room to store from 30 to 40 lbs. of honey in the combs below, they will very likely not go into the sections at all."

"Well, that helps to solve the matter, for each fall this hive of Italian bees has been so heavy that I could hardly lift it, while I have had to feed many of my black colonies to get them through the winter; and I have taken advantage of this matter by taking filled combs from this Italian colony and exchanging them for combs having very little honey in them from the blacks. But would you reduce this ten-frame down to a seven-frame hive this fall?"

"No, I would not do that; but use it as it is till just as the honey-flow comes on, when I would reduce the size of the brood-chamber to the number of combs the queen had brood in, even were that not more than six combs. But you will be most likely to find brood in from seven to ten combs in each hive, were you to have a whole apiary of Italian bees. By thus working, the bees will enter the sections at the commencement of the honey-flow, when your Italian bees will work in the sections as well as the blacks, as a rule."

"How do you reduce the size of the hive to suit the number of combs which have brood in them?"

"By using dummies, or division-boards, as they are sometimes called."

"How are these made?"

"In various ways. The way I like best is to take a piece of rough or cheap lumber, an inch thick, and cut it so it will be the same size as the frame I use, under the top-bar, when the top-bar of a frame is nailed to it. This gives you something which you can use in the place of a frame at any time and in any place. So, should you wish to contract one, two, three, or four frames, on account of having that many in your hive unoccupied with brood when the honey harvest came, you could do the same at once by putting in these dummies in place of the frames taken out; then at the close of the white-honey harvest you can set the combs back in the hive in place of the dummies, so that the bees can fill them with dark honey for wintering."

"That appears as if it would be handy, accomplish its purpose, and cost but little, which is the best of all. I'll try it another season, at any event. But is there no other way of making an obstinate colony work in sections?"

"Yes, the next best way that I know of is to take a section, or several of them, from a hive where the bees are at work nicely in them, and place them on the hive where the bees are quite loath to enter the sections, carrying all the bees that adhere to the sections with them. This will usually incite the non-working colony to go to work in the sections also."

"I never tried that, but it looks as if it might work all right."

"Then with very obstinate colonies I have taken a piece of drone comb, containing small larvæ, and fitted the same into one or two sections, placing the same in the center of the surplus-apartment, much on the same principle that a frame of brood is placed in an extracting-super, when the bees would enter the sections to care for the brood, and in doing so would commence work in the other sections about this brood."

"I had not thought that I could do that way; but it seems plain to me that such a proceeding would cause the bees to go to work in the sections at once. But what of the sections containing this brood when they are filled with honey after the brood has emerged from the cells?"

"I generally keep track of this matter, and take the section having the brood away just before the drones come out, for the honey in such a section would hardly be in salable form, and should not be put on the market."

"I am very much obliged for this little talk, and will go now."

"Before you go I wish to say that all I have said has been on the supposition that any colony on which the sections are placed was strong enough in bees to work in sections, and still refused to enter them. Where any hive is not filled with bees it is useless to attempt to *make* them work in sections. Many a beginner is deceived here, and pays no attention to the strength of his colonies when putting on the sections, treating them all alike. Italian bees do not breed quite as rapidly early in the season as do black bees; but if attended to as they should be they will have more brood in just the right time to give a large number of laborers ready to go into the fields just when the honey harvest is on than will any other variety with which I am acquainted."

Editorial
By E. R. Root.

It is quite a remarkable fact that, up to the 20th of October, we had had no bad frosts. Out in front of our factory our posy-bed is almost intact. The nasturtiums and other ornamental foliage look very luxuriant and healthy. Moderate weather in the fall will probably mean a severe winter later on. Well, let it come.

THE HOME OF THE HONEY-BEES PREPARED FOR FIRE.

We have just put in a 90,000 gallon fire-cistern, which, with our 60,000-gallon cistern, both connected with our big fire-pump, we hope will give adequate water supply for fire. Automatic sprinklers that will send a flood of water over every portion of nearly all our buildings, whether a watchman is present or not, stand as an additional safeguard. In addition to all this a watchman patrols the plant nights and Sundays, and a regular organized fire company, made up of the workmen, is prepared for instant service. Every now and then large streams of water will be sent clear over the buildings during the fire-drills. One or two late fires have shown the need of system and organization. Last spring a fire in our boiler-house threatened the whole plant. Indeed, at one time it looked as if it would have to go; but such a deluge of water was thrown that we didn't even put in a claim on the insurance companies.

THE ASSOCIATION AND GENERAL MANAGER FRANCE.

General Manager France is a busy man now. He is getting out an elaborate report relative to the work of the Association during the past year. The large increase of membership (500) since he took hold of it is substantial encouragement and a splendid indorsement. Mr. France has several cases of adulteration on hand, and it certainly will not be his fault if he does not strike consternation in some quarters. The Association is doing splendidly, but it can do a great deal better if it has the moral support and the dollars of more men who are interested in its welfare. Bee-suits of various kinds are becoming more frequent again; and if those of you who read this are not members *before* an action is begun against you, you can expect no aid by joining the Association after you get into trouble. The Association is a sort of life insurance, and the small fee or premium of $1.00 entitles you to protection for a whole year, to say nothing of the other benefits you will get.

FORMALIN TREATMENT NOT THOROUGH ENOUGH.

Referring to the question of formalin as a remedy for foul brood, Mr. R. F. Holtermann, of Canada, has this to say:

> I notice your item in Gleanings regarding formalin and foul brood. Some do not use it in air-tight compartments (they think they do). Would this not explain failure? The fact that some report the brood alive adds much to my suspicion.
>
> Brantford, Ont., Oct. 3. R. F. Holtermann.

I still feel that the foundation plan of treatment, melting up or burning diseased combs, is the safer one for the average bee-keeper to pursue, for not every one can work with the precision and care of a trained scientist. But if we had foul brood in our yard, I certainly would treat all empty combs, supposedly from healthy colonies, with formalin, on the ground that it would do no harm, and might do a great deal of good; for physicians tell me that formalin gas is one of the most powerful disinfectants known to science; but they also add that the gas must reach every portion of a room or substance contaminated. We must bear in mind that a coating of wax, like capping of sealed honey, is impervious to gas, acids, and the average chemicals; and that it is not to be wondered at that formalin should fail to cure foul brood or to kill healthy brood, in some cases at least. Of course, I am aware that brood-cappings are not entirely air-tight, but enough so to keep out the fumes unless great care is used. I should not think of disinfecting combs containing honey with the disease-germs in it, especially if that honey were capped over, for it would be contrary to reason and experience in other things.

ANOTHER BEE-SUIT; BEES "DANGEROUS ANIMALS;" STUFF AND NONSENSE.

Mr. J. W. Pierson, secretary of the New York State Association of Bee-keepers' Societies, has a queer bee-suit on his hands. A neighbor of his, Mr. F. W. Lockwood, has begun an action against him to recover $150 for a horse which, he alleges, died as the result of bee-stings while feeding in a pasture heavily matted with clover, near Mr. Pierson's bees. The plaintiff avers that last June his horse was in his clover-field pasturing; that the bees were very thick on the clover — so thick that he was afraid the cattle would be stung. Wednesday morning, June 24, he found one of his horses fast in a barbed-wire fence. Its nose and lips, he alleges, were swollen, and it had crazy spells every fifteen or twenty minutes; that it would thrash around and strike with its fore feet. A veterinary was called, who first pronounced it a case of lockjaw. He gave it something to cause a stupor; but when told that bees were in the pasture where the horse was feeding, he reversed his first decision and pronounced it a case of bee-sting poison. Applications of hot water were used, but to no avail. It is alleged further that this same veterinary examined the horse after it was dead, and found its mouth and throat full of bee-stings. Other veterinaries have been consulted by Mr. Pierson in regard to the case, but they do not agree that the symptoms shown by the horse point to any thing that would indicate bee-stings as the cause of the trouble. Mr. Pierson states that there are other bee-keepers in the vicinity, or at least within two miles. In the petition praying for damages, the plaintiff claims that the defendant's bees stung and injured his horse so that it died; that the defendant well knew the "ferocious" nature of all bees, and that they were "liable to sting animals and mankind without any provocation that an ordinary person knew how to avoid, and that they were by nature dangerous." He further goes on to say that the "defendant had knowledge of the ferocious nature of his bees, took no care or means to keep them within the confines of his own premises, but allowed them to roam at will on the premises of his neighbor, to pillage therefrom, and carry away and injure and destroy the crops of said neighbor; to injure and kill his animals, and to intimidate his said neighbors and endanger their lives, and to render them unsafe and unavailable to them;" wherefore he asks damages in the sum of $150, and the cost of the action.

The defendant, the bee-keeper, very properly enters a denial, stating that his bees are kept in accordance with the law, and that he has been in no way negligent in the care of his bees. General Manager N. E. France, of the National Bee-keepers' Association, has had all the facts placed before him, and has authorized W. F. Marks, one of the directors, to look after the case.

The statements or charges made by the plaintiff in this case are most absurd and ridiculous—especially where he alleges that bees are "dangerous animals," that they "carry off crops," and that they prey on the lives and property of the people round about, and implies that no one has any business to keep them or allow them to go off from his own premises.

It appears that Mr. Lockwood would probably not have begun this action; but a certain attorney, hungry for a job, has been nagging him on to it.

The case comes before a justice' court, and every thing will depend on whether or not the justice is a fair man, willing to receive evidence and render judgment accordingly. In case the decision should be adverse to Mr. Pierson, I hope the Association will enter an appeal, as the membership could not afford to have a precedent so ridiculous and silly as this to stand against us. It is bad enough when an effort is made to drive bees out of incorporated villages and towns; but it would be a pretty pass if one could not keep bees out on the farm or in the country, or if we must keep them on our own premises to prevent them from "carrying off crops."

We shall endeavor to keep our readers posted in the developments in this case. In the mean time we confidently hope and expect that the Association will score another victory. It has never been beaten.

I have no doubt that friend Marks and others who have charge of the case will let it be known that the plaintiff has the odds of 1500 members of the Association against him, with a treasury of money back of them, to fight this case to a finish. Mr. Pierson says his bees have always been very quiet; and that, so far from their being "ferocious," it is absurd.

Even if it be proven that the horse died of bee-stings, the plaintiff will have to show that it was Mr. Pierson's bees, and *his bees only*, that did the stinging. This was the charge given by the judge to the jury in the celebrated Utter v. Utter trial in January, 1901.

Later.—I have just learned from Director Marks that this case has been postponed by the "other side," and he doubts very much whether it will ever come to trial, as "it is so ridiculous." Whenever either side shows a disposition to postpose, it may, and usually does, imply a lack of confidence to meet the issue. It looks so in this case. In the mean time I hope Director Marks will let the "other side" know the odds it has to fight, and that it might just as well "throw up the sponge" first as last.

TROUBLE BETWEEN BEE-MEN AND ALFALFA-GROWERS IN NEVADA.

It is a well-known fact that Nevada produces many carloads of fine alfalfa honey. So much of it is shipped out of the State that the alfalfa-growers and cattle-men are getting their heads together, arguing that all this sweetness is just so much saccharine matter taken out of their hay. One of the largest ranchers is a representative in the legislature of Nevada, and it appears that efforts are on foot to get a law passed at the next session of the legislature, prohibiting bee-keepers from locating bee-yards within flight of the alfalfa-fields. This would practically mean the wiping-out of all bee-keeping interests in a very important honey-producing State, and, besides, setting a dangerous precedent for other States. The argument made by the cattle-raisers and ranchers is this: Carload after carload of alfalfa honey is being shipped out of the State. The best hay is the first cutting, and the first crop of blossoms is also the best for the bee-keeper. They argue "that a ton of honey probably represents the essence of 200 tons of alfalfa, and that the hay is just that much poorer in saccharine matter. . . . . It stands to reason that you can not take all of this honey out of the hay, and still have it as rich in saccharine matter." In this day of progress and scientific investigation it is staggering to hear such talk. Of course, the bee-keepers are ridiculing such sheer nonsense, for it can not be based on any thing else than consummate ignorance and prejudice. It is a well-known fact that red-clover hay will not develop properly unless there are honey-bees or bumble-bees in the vicinity; that attempts were made to grow the plant in Australia, but it failed miserably until bumble-bees were introduced. Exactly the same thing will apply in growing alfalfa. While it would be too much to claim that this kind of hay can not be grown without bees, yet it is safe to say that a much poorer crop would be the result without them. We can also assert, without fear of successful contradiction, that the best scientific men of the world, as well as professors in all the agricultural colleges, can show that the assertion of the cattlemen is utterly without foundation.

The animus of this whole thing is, evidently, jealousy. Whenever one class of citizens make a little money, there are plenty of people who will be envious of them.

I do not know what the National Association is doing or has done about the matter; but I do not believe its 1500 members will allow any such foolish and ignorant legislation to come to pass without a vigorous fight. Like the other case reported in these columns, the whole thing is so ridiculous that I think the bee-keepers will be easily able to thwart any efforts that may be made to pass a law of this kind. But we must not be over-confident. We must be alert, and ready to know what the opposition proposes to do, and meet them half way.

A JOINT CONVENTION OF THE HAMILTON CO. BEE-KEEPERS' ASSO'N AND THE OLD OHIO STATE BEE-KEEPERS' ASSO'N, AT CINCINNATI.

There is to be a joint meeting of the Hamilton Co. Bee-keepers' Association with the Ohio State Bee-keepers' Association, at Cincinnati, Nov. 25, in the convention hall of the Grand Hotel. The Hamilton County Bee-keepers' Association, as I have already mentioned, is a very lively organization; indeed, I believe it is the most flourishing body of bee-keepers that ever existed in Ohio. It has regular monthly meetings, and the enthusiasm seems to keep up to the boiling-point. Well, its members are thoroughly aroused as to the necessity of having a foul-brood law in Ohio, and they desire to co-operate with their brethren all over the State in asking our next General Assembly to pass such a measure. The old Ohio State organization held its last meeting in Cleveland, if I mistake not. The secretary, Miss Dema Bennett, just before she died, turned over to me the records and other properties of the old Ohio State organization. The time now seems to be ripe for reorganizing it, and holding a meeting in Cincinnati, for we are bound to have a good local attendance and an enthusiastic meeting. Bee-keepers all over the State are asked to lend their influence, for it is proposed to bombard the Ohio State Legislature with a goodly company of bee-keepers, possibly holding one meeting in Columbus while the legislature is in session. The date of the convention, Nov. 25, the day before Thanksgiving, will insure low railroad rates; and you may rest assured that the bee-keepers of Cincinnati will do the handsome thing in their part of the work.

It is highly important that every bee-keeper in the State should petition his own Senator and Representative. Soon after this journal is out the election will be over, and you will know who your next law-makers will be. Possibly you will know before. In any case, see them as soon as possible, and secure from them a pledge of support. *This is very important*, for it is essential that *every* member of the General Assembly be approached by one or more bee-keepers; for when our measure comes up they will feel that the law is urgently needed. We must make them feel the *pressure*. Put in your best efforts now before you forget it. If you can't see your man, write him.

The meeting at Cincinnati will not be devoted entirely to the discussion of foul brood. Other subjects will be discussed, and among other things will be a stereopticon talk in the evening.

Later.—I have just learned that D. R. Herrick, a Republican nominee for the legislature, and who has signified his willingness to father and support a foul-brood bill, will be present to address the convention. As he will probably be elected, this means much to us.

GENERAL
CORRESPONDENCE.

ITEMS AND SUGGESTIONS FROM CUBA.

Feeding Cheap Sugar to Produce Beeswax; Feeding to Increase Brood; Overstocking, etc.

BY FRANK N. SOMERFORD.

In Pickings, Aug. 15, I notice the suggestion from the *Australian Bee-keeper*, p. 709, regarding the feeding of sugar for the production of wax. I wish to say, Mr. Editor, that I am more than surprised to see you sanction such a scheme, especially when I remember that part concerning the sugar-syrup honey thus obtained as a side issue.

Favoring the matter as you do, it would thus seem you would also sanction the selling of this product as honey, and all this, too, just after having thrown "suds" on Mr. David Wauford (page 684), for his poke at some member of the N. B. K. A. for selling sugar syrup as honey. If the plan of feeding to secure wax were feasible, the wax, of course, would be a pure product; but the honey certainly would not be so, although it, of course, would be much superior in both quality and flavor to much of the cotton or honey-dew honey of the United States. But from my experience in feeding sugar to bees I think I can safely say that nothing can be made at the game in that way.

The bees, after a few days' feeding of 75 to 100 lbs. of sugar with an equal quantity of water every second day, to a ranch of 200 colonies, seem to show, upon opening them, just the slightest whitening of the combs, with some increase in brood, for which purpose I am feeding—that is, to get the hives crowded with brood and bees before the cold or cool weather and the honey-flow begins. I think this is the only advantage that can be gained from feeding.

Some one, of course, will say that, at the closing of the honey-flow, is the time to get results from feeding; but in Cuba that is not possible; for at that time (the opening of spring) the bees are all ambition to swarm, rendering the plan impractical.

Some wiseacre may state that there is an art in feeding which I haven't learned. Perhaps so; but this is not my first feeding. I have been in Cuba almost four years, and find it essential in my locality to feed 3000 or 4000 lbs. of sugar each year during the months of July, August, and September to encourage brood-rearing. Nearly all the bee-keepers here have to resort to feeding.

Having tried several ways of feeding, I find that placing the sugar and water in the extractor, and turning the reel a little, is the easiest way to mix the feed. Then to administer, pour into vats or tanks; set out into the open air, with a slatted float, or with trash, grass, weeds, etc., thrown in to give the bees something to hold them out of the "juice," else they'll pile in on top of one another until your tank is filled with drowned bees.

I have at one ranch a tank for feeding, of 12,000 cubic inches capacity, and a small one of 5000 cubic inches. At another ranch I have two of the 5000 cubic-inch capacity; at a third ranch I have one of the 12,000-cubic-inch capacity.

You would probably suggest moving out from such localities to better pasturage, and I did try to after having spent several days on a horse and wheel, riding after locations. I decided on a place 40 miles away, and not very near any bee-keeper; but before I got there, or, worse still, after preparing 100 hives, hauling them ten miles to a point of shipping, placing them nicely in the car, and arriving at destination, reloading on to carts, and driving them out 3 miles to my location, I was informed by the Cubans that another American had put a ranch of 200 just across the branch on the next little hill. There we were, the two ox-carts, their drivers, myself, and partner, and it growing dark, and the next day was Sunday. The bees, of course, had been jolted, thumped, jarred, and banged about until they wanted "Cuba libre" too; but after learning that the other bees were so close I decided not to set my bees out and go into a war of pasturage against the other fellow, even if he had told me previously that he was going to put his bees somewhere else, and I had the location rented long beforehand.

I met the man a day or so later, and I felt—well, I won't say just how I did feel, for it would be impossible to express it. I looked him over, and saw that he was a man for whom I had gone to considerable trouble to teach how to make foundation, some two or three years ago. Well, it flashed into my mind that "one good turn deserves another." I had done him the one good thing in going out to his place and showing him how to make foundation, and now I could do him the other by sacrificing the location, and I did. Was that right? Well, I thought a while and then called to him, and he came over and I gently inquired if he had put out his new ranch yet, and where. He told me where, and said that he had changed his mind, and didn't set them in the other place.

Well, now it would seem that nowadays one has no right to change his mind. Any way, the bees were, as I stated, a piece out in the country. The cart-men and myself had no place to eat and sleep, and the poor bees were crying to get out, and it was growing dark, and the mosquitoes were singing the accompanying song of praise, and biting as only mosquitoes can in Cuba in June.

Well, the cartmen picketed out the oxen and pulled out for more congenial surroundings, stating that they'd return the next day to move the carts to wherever I stated. My partner on this trip, Mr. Smith, of Georgia, and myself, soon turned in under the cart to spend the night. At dawn I mounted my wheel and rode away, leaving Mr. Smith to master the situation in the cot under the cart of bees while I searched the neighborhood for a location, riding hard till two o'clock, when I kicked a pedal off my wheel, and went on one foot into town to get breakfast. At 2 P. M. I had found no suitable place, but struck a man who, for $100, would rent me a place where there was no house and no well, no fence, nor any thing in particular. I went on, and soon found a better place, but not as far from that man who "changed his mind" as I should like to be. The bees, though, are doing reasonably well at present. Locations in this part of Cuba are not so plentiful as some may lead one to believe.

That's right, Dr. Miller; you stand by the hard sound wood as giving the strongest smoke. You challenge Ernest to a duel with smokers. Let him use rotten wood and you let me send you some hard sound yaba wood, and with a few puffs of the bellows you can send him to the hospital or optician. It served me thus before I knew what was the cause. The same wood, though, when rotten, can be used without danger.

You tell them, Mr. Editor, not to think too much of formaldehyde or formalin, as it is called here. All old combs that have putrid larvæ in them are safer rendered into wax, or burned. I evaporated an ounce of the 40 per-cent solution with an alcohol-lamp and oil can evaporator, with rubber tube and piece of pipe, into 50 frames set loosely into hives (Dovetailed), with the joints or cracks all plastered over to keep fumes from escaping; and after a day or two I used some of them to shake on to, and the disease still remains. Whether it's the same cells that the bees have not cleaned or not, I can't say, for I never marked the diseased cells when fumigating; but these combs contain the dark coffee-colored ropy mass which still retains its odor.

Now let me suggest that some of you send some foul brood to those who recently decided the two diseases, foul and black brood, are the same. Ask them, after they have thoroughly fumigated with formaldehyde, to try to grow cultures from the rotten mass in the combs; then if they succeed in growing cultures after fumigation it would not be safe to recommend the drug as a cure. But after several trials, after fumigating, if they fail to grow cultures, then it will be all right to say, "Hurrah for the cure!" But until you have some real evidence, don't say much in its favor. My experience on combs infected would not warrant its use. I have nearly two pounds of it, which costs in a Havana wholesale pharmacy 70 cents per lb. But we'll risk no more combs from it in healthy colonies unless they are apparently clean, and are fumigated only as a safeguard against any stray germs which, according to Howard and others, will die naturally when exposed to a few hours of common air, or just set the clean combs out a day or two, and air them, as that would be as good.

Will some of the professionals who recommend the drug—the inspectors who use it—please state specifically on what kind of combs or infection they use it? and if on the putrid coffee-colored ropy mass, did it dry it up? and did the bees clean it out from the cells, and such cells and combs remain clean?

I note what Mr. Atchley says on page 717. I have seen no bees with paralysis in Cuba; but I had quite an experience with that disease in Texas, at which time I watched the poor bees in front of the hive, with the shakes, and all swollen up as Mr. Atchley describes; but what I found inside of them did not look like larval food. They were clogged with hard dry pollen which they seemed unable to rid themselves of. Try as hard as they might, the effort causes them to shake or tremble. I thought the disease was from lack of water or from bad pollen.

San Antonio, Cuba, Sept. 5.

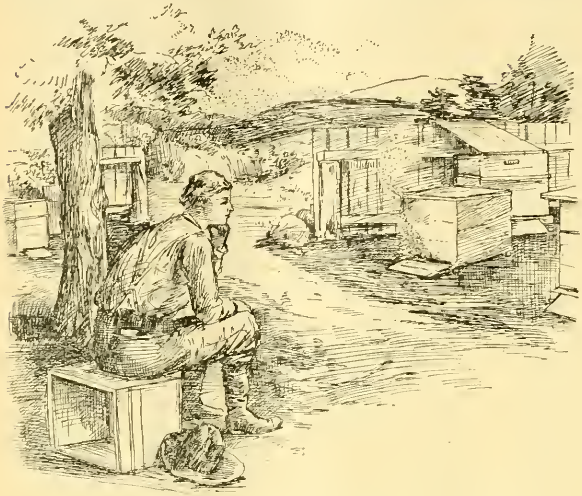
[I feel sure you misunderstand the item you have alluded to from the *Australian Bee-keeper*. I understand that our Australian friend meant that the production of honey—that is, honey from natural sources—is to be a secondary matter, and the production of beeswax by feeding sugar, when no honey is to be secured in the fields, the primary business of the apiarist. I talked with our mutual friend Mr. de Beche in regard to this, and he said he had in times past made some experiments in feeding cheap sugar, to secure wax, that convinced him the thing was practical, if I am correct. No one would think of feeding this cheap sugar, to be had in all sugar-making countries, with the view of producing any thing to be called *honey*.

Your plan of outdoor feeding is all right for encouraging brood-rearing; but I hardly believe it possible that feeding in this way would be practicable for the production of comb honey. I suppose you contemplate having an apiary so far away from bees belonging to anybody else that there will be no danger of feeding the neighbors' bees.—A. I. R.]

MY FIRST TRUANT SWARM.

BY GEO. W. PHILLIPS.

For some time I had been having spasmodic attacks of the bee-fever. Eventually I made up my mind to become an apiarist. I was a boy of about eighteen then, and I entered into the work with a real boyish enthusiasm. My capital consisted of only a small pile of shillings, and this was soon invested in hives, frames, foundation, a few swarms of black bees, and a five-frame nucleus with tested Italian queen. Thus I made a start with about six colonies all told. Every day found me more fascinated with my new occupation than I was the day before. You could get me to do hardly any thing else those days than work in the apiary, and I probably worked as hard over those few colonies as I did later when I had four apiaries with 750 colonies to manage. At dawn I was up in time to watch the first lot of bees take their flight and return laden with stores, and covered with dust from Christmas-pop. Later you could see me looking into the hives to see how matters were progressing, or busy at my work-bench near by, making or painting hives; at noon reclining under some shady tree poring over the A B C of Bee Culture, seeking to learn something of the mysteries of bee-keeping, and also not infrequently gazing ardently at the pictures of the large apiaries contained therein, and dreaming of the time when I too would have a large apiary; and at nights until ten o'clock, with lantern, harpoon, and tar-brush, engaged in mortal strife with those relentless enemies of bees in Jamaica, red ants and frogs. In this way days and weeks passed smoothly.


COMPLACENTLY WATCHING THEM ISSUE.

It was with a degree of expectation bordering on impatience that I waited for the swarming season to arrive. Large apiaries and natural swarming were concomitant to my mind. I had read every thing on the subject of swarming I could get hold of; the chapter upon "absconding swarms" in the A B C I almost knew by heart, so often had I perused it. Would my swarms abscond? I wondered. Had they any reason to entertain the thought? Did they not have the best attention at home?

Half a mile from the apiary was a cliff rising perpendicularly from the foot of the mountain, to a height of eighty feet, or perhaps more, and almost every niche and interstice in that rocky promontory was occupied by bees. My brother had on one occasion ferreted out a swarm from the base by means of a smoker, and rags saturated with carbolic acid. How did those bees happen to get into that rock? Were they wild bees? These and like questions I kept asking myself from day to day; and the more I thought about it, the more that apiary of nature became associated in my mind with "absconding swarms."

At last the swarming season arrived. Stimulated by the light flow from the mango, pear, cherry, and other fruit-trees, the bees soon had queen-cells under way, and my dreams of a large apiary seemed at last to be taking tangible form. How eagerly I did watch for those swarms to issue! and how tardy they seemed to be! However, it is said that all things come to those who wait, and it was so in my case; for one morning my heart gave a big bound as some one called "Swarming! swarming!" Looking I saw an unusual amount of bees flying from the entrance of one of my strongest colonies. In a moment I was on the spot, complacently watching them issue.

Six years have passed since that time:

HARD LUCK.

yet, strangely enough, even now those same old feelings which I experienced in my early bee-keeping days will often return when I see a swarm issue. The musical hum of contentment; the "vim" with which the bees go forth to look for a new home; and, above all, the perfect concord existing between those teeming thousands can not fail to impress the thoughtful mind with the fact that not infrequently, even among the lower orders of God's great creation, there exists an innate harmony terribly lacking in the family of man.

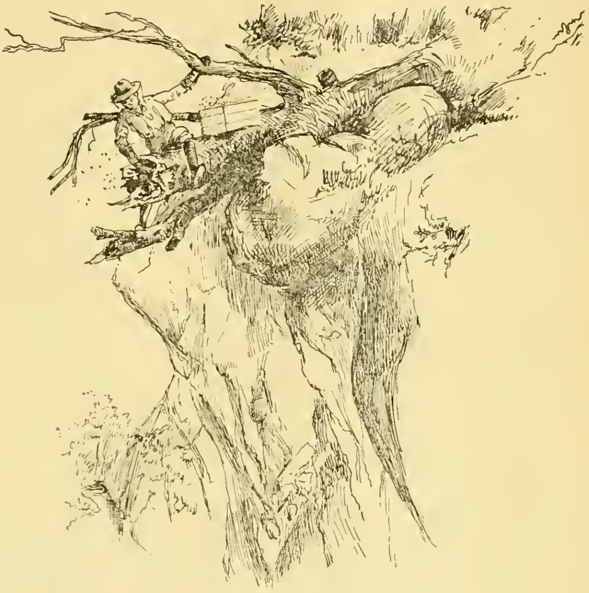
Doubtless these or kindred thoughts passed dimly through my mind as I watched that swarm issue. At length the bees ceased to rush out at the entrance, and immediately over my head hovered as fine a swarm as ever gladdened the heart of an amateur. Every thing was in readiness—swarming-basket, pole, new hive, etc. With what delight I watched them as they lingered near a limb of our old mango-tree! Surely that was a nice place for them to cluster; yet they did not cluster there, but circled higher and higher (I began to glance nervously at the cliff). While I looked their numbers seemed to be diminishing strangely. Then suddenly I realized that the swarm proper was away in front, and what I was gazing at was but the stragglers in the rear. My worst fears were realized — my swarm was absconding. Some one (for quite a few of the house folk had assembled to see what was to them a new and novel procedure, but which they have since come to regard as commonplace) began beating an old hoe with might and main; another suggested water; another pitched sand wildly into the air; but in spite of every thing, in less time than it takes to tell it those bees had started for the cliff, and I was rushing wildly after them.

Oh how they did fly! It seemed to me they traveled as fast as a locomotive engine; and what a lively time I had following them, scaling stone walls, crossing lots, down the steep bank, into the river, up the other bank, over the barbed-wire fence, through coffee and cocoa plantations, through the village which lay in the bee-line (much to the surprise if not consternation of the villagers) following hard all the while upon the tail end of the swarm, until, almost breathless, and with perspiration oozing from every pore, I found myself at the foot of the cliff, and, looking up, saw, to my chagrin and dismay, my swarm going into a hollow log at the top. A while I watched it despairingly. Is this the way I was to be repaid for months of hard work? And my dreams of large apiaries, were they only dreams after all? A minute later and I had resolved to get back that swarm at all costs.

A circuitous path brought me, after a hard climb, to a position in the hill overlooking the cliff. Cautiously descending I worked my way, in a very undignified manner, I confess, to within a few yards of their location, and reconnoitered. The bees had already taken possession of their new home, and were evidently as happy in their old hollow tree as they were in their nice painted hive at home.

Two questions now confronted me—would I have the nerve to descend to the edge of the cliff? And if I did, how would I be able to take the bees from their stronghold?

The first was soon decided. Crawling still more cautiously along I at length reached the edge of the precipice and perched myself astride that hollow log. Now came the next difficulty, viz., to remove the bees. The only way that seemed feasible was to take hold of them and pull them out, and this I determined to do. A messenger sent home soon returned with the only thing I could substitute for gloves—socks. Fixing my nucleus-box in position I put a pair on each hand, and heroically made the first scoop. "*Blazes!*" I nearly yelled. Didn't they just stick it into me? Pitching that first hot handful into my box, and shutting it hurriedly, I put another sock on each hand and tried again. Talk about long tongues! I don't know how long theirs were; but I knew from the most practical sort of experience that their "business end" was long enough to go through those three socks all right. The more they stung, the more resolute I became. Putting on my last pair of socks I set to work



STRENUOUS WORK.

again. A sort of musical buzz accompanied each scoop as a score of angry bees, determined to do or die, stuck to my hand; but this time it was too heavily covered, and an occasional slight prick was all that I suffered through the rest of the fray.

"Fortune favors the brave." I managed to capture the queen, then the rest of my task was comparatively easy. After a few hours' labor I succeeded in having almost every bee confined in my nucleus-box, and wended my way home with *feelings* better imagined than described.

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The substance of the above story is minutely true. Reminiscences of my early days of bee keeping often cause me pleasure, and not infrequently I have to laugh at my peculiar method of doing things in those days. This circumstance is one which I shall always remember. The yawning abyss, hot tropical sun, and hotter bee-stings, created an impression upon my mind not easily effaced. To the older readers of GLEANINGS, whom this will hardly interest, I humbly offer an apology. At the same time I express the hope that, among the younger folk—the amateurs—it may be the means of stimulating when discouraged by adverse fortune. Heed the lesson taught in this—"where there's a will there's a way."

Medina, Ohio.

BRUSHED SWARMING — ANOTHER METHOD.

The Weight of Foundation in Wiring; Spraying Water to Stop Robbing a Failure.

BY W. O. EASTWOOD.

I have two suggestions to make for your consideration. Instead of shaking or brushing as a means of effecting forced swarming, would it not be possible to effect the same purpose more readily, and with less disturbance, by putting the hive equipped for the reception of the swarm underneath the old (or parent) hive and then driving the bees down with smoke from the one hive into the other? In wiring frames I fancy that I draw the wire rather tauter than you direct, and yet I never have had any trouble with foundation buckling as a consequence. Can it be, I wonder, whether my practice of stretching the wire in the first instance has any thing to do with my freedom from the trouble? Taking up the spool in my left hand I grasp the end of the wire with a pair of pliers and give a moderately sharp pull, having, I should have premised, unwound three or four feet of the wire. I take a second hold, and similarly stretch as much more. By practice I am able to tell within a foot or so how much will be required for a frame, and I get the length needed by repeating the process of stretching in this way twice. I then break the stretched portion from the spool. In this way I take the kink out of the wire and find it to work much more comfortably. Each time I pull the wire I find it gives just so far to the strain, and then stops.

Bees surely are queer creatures. Why do they ball a queen at times? That was a remarkable instance given in the last issue of GLEANINGS, page 674, by Martin L. Newman. This queen, it seems, had been permitted to lay. Why this sudden exhibition of apparent ferocity? How will this do for a theory by way of a suggested explanation? May we suppose that there was a laying worker present in the hive, or one or more with the capacity to lay, and that the ball was in the main made up of bees desirous of protecting the queen from the jealous onslaught of a laying worker or workers? If this balling were a combined attack of the whole force it might be expected that they would make short work of the business, which does not appear to be the case.

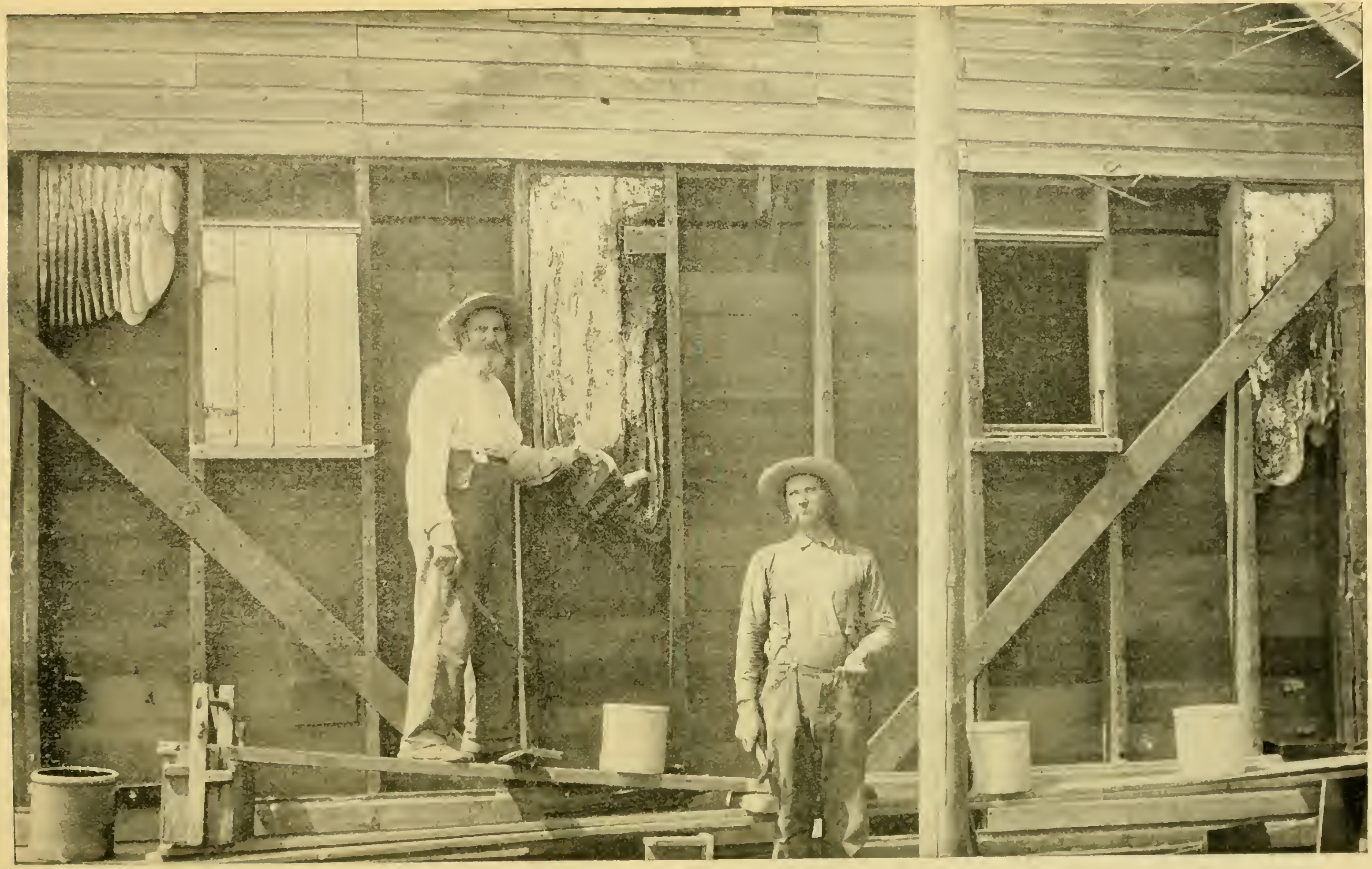
Talk about spraying to stop robbing, I tried the garden watering-can, with a fine sprinkler on, just the other day, without one bit of effect. I have the hive in the cellar now, afraid to put it out. It is queenless; but I gave it a frame with brood, kept it in the cellar two days, when, on putting it out, a horde of bees fell on it again like so many wolves; and in desperation I put it back in the cellar again, being afraid that it would spread the burglarious spirit throughout the apiary. For making smoke I use excelsior and cedar bark.

Whitby, Ont., Can., Aug. 3.

[The plan you speak of as a substitute for brushed swarming might work; but when you can move bees from one compartment to another by shaking or brushing, it is much more to be preferred than by smoking. To drive bees on the plan you describe would be almost cruel. Excessive smoking, I am afraid, kills a good many bees, and at the same time I know it suspends operations for at least a whole day. Excessive smoking should always be avoided if possible.

If your wires are drawn tauter than I described in these columns, and you don't get buckled foundation or comb, it is because you use a heavier grade of wax. While we sell foundation, and should be glad to sell lots of it, I consider it a great waste of money on the part of bee-keepers to use a grade of wax heavier than is absolutely necessary to get straight combs. A light brood foundation, if properly handled, will give just as good results as the more expensive medium brood.

I never tried spraying robber bees with water. I should imagine it would prove ineffective in a very bad case of robbing. You say nothing about contracting the entrances down to a space just wide enough for one or two bees to pass. Putting the bees down cellar until the uproar is over is a good plan. But before placing them outdoors again, reduce the entrance to the space mentioned, and I think you will find they will put up a good defense.—ED.]



THE WAY BEES OCCUPY DWELLINGS OUT IN KEOKUK COUNTY, IOWA.

BEES IN THE SIDE WALLS OF A GRANARY.

Some Large Combs and Big Colonies.

BY H. C. SEARS.

Mr. Root:—I send you a photograph, of which I wrote you some time ago. The bees in this part of the country have had difficulty in finding places to locate. They have been found in almost every place you can think of, from a bee-hive to the twine-box on a binder. I took five out of a neighbor's granary, and have four or five more to take out of the sides of houses yet this fall for other neighbors.

The ones shown in the photograph were located in the east end of O. V. Hill's granary. The building is 20 feet wide, and 10 feet high to the second floor. We put the hives right over the bees on the upper floor, and made openings down to the combs, and drove the bees right up into the hive. The swarm in the left-hand corner had not been there as long as the other two, but had a nice start. The one on the right hand had done very well, but about ten days before we took them out, a quantity had melted off from the bottom, and dropped down; but they had rebuilt it, and got it quite crooked.

The one in the center was the greatest sight in the honey line I ever saw, and we have been in the business thirty years. The first comb, as you see, does not run clear across the space; but the second and third ones do. They were 22 inches wide, and 60 inches long. The studding were six-inch, making a space 22×6×60, or 7920 cubic inches, if they had built it down square at the bottom, which they were working very hard at when taken out. There was not a stick or cross-piece except the little inch block that shows on the right hand side about a foot from the top. We have taken GLEANINGS almost ever since it started; and if you have ever shown larger combs I do not remember it.

The picture on the left is that of my father, who was 84 years old the 14th of this month, and he has worked at the bee business to a considerable extent for nearly thirty years. He holds in his right hand a honey-knife, and in his left a smoker. The one on the right is the writer.

Thornburg, Ia., Sept. 19.

[You have given us quite a remarkable exhibit, friend S. After all, I suppose the only way to get combs out from behind clapboarding is to take the siding off, and cut them out just as you are doing in the picture. Somehow these great combs make my mouth water. Their very irregularity, and being built just as nature builds them, suggests a delicious sweetness that we do not think of when we see the same comb nicely built in the regulation man-made brood-frames. It would be a great thing to have a honey-harvest picnic on an occasion of this kind.

If any one can show up larger or longer combs than are here presented, let him hold up his hand.—ED.]

A MODEL CALIFORNIA APIARY.

Extracting from Shallow Combs; how the Plan of Shaking Swarms Enables a Man of 60 to Take Care of 300 Colonies, his Two Apiaries being 23 Miles Apart; Stamping Honey with the Producer's Name.

BY M. R. KUEHNE.

I send you to-day a photograph of Pomona Apiary, which is situated just outside the limits of Pomona, on San Bernardino Ave., 1½ miles southwest of Claremont College. The apiary is run on strictly scientific principles, and consists of about 200 colonies of bees, half of which are run for comb honey and the other half for extracted. That means that I select every spring the strongest stands for comb honey.

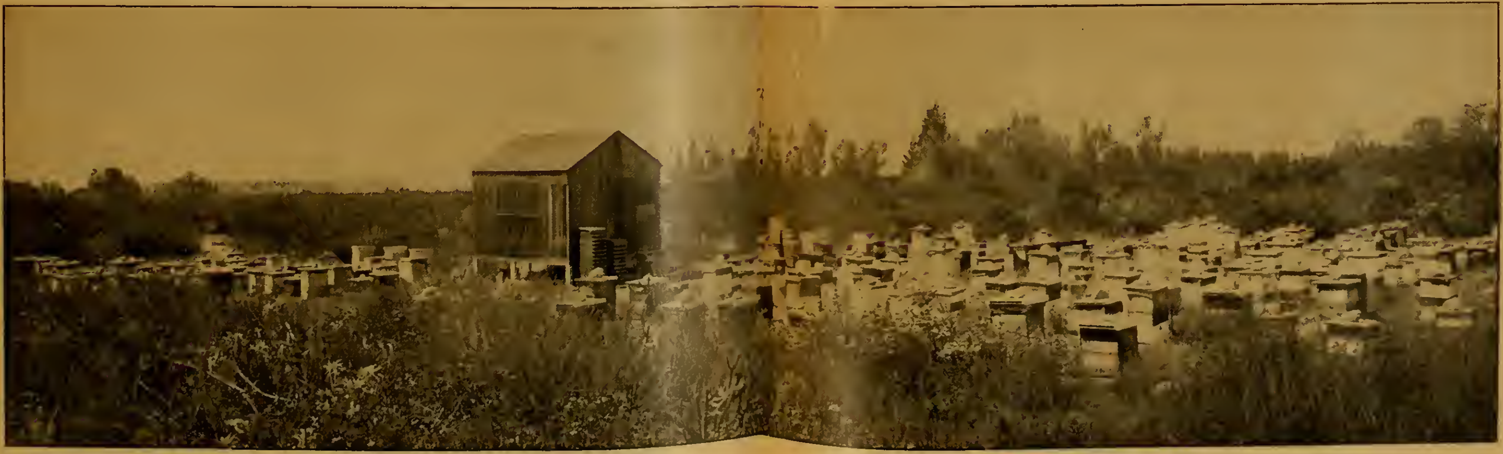
The house in the picture is the extracting-house, containing one large four-comb extractor with twelve-inch pockets, to take two half-depth frames each, or eight half-depth frames all together, as I use mostly the Ideal supers of ten-frame size for brood-nest and surplus-supers. I find this arrangement much more convenient for the many different manipulations used in an apiary run for both comb and extracted honey, besides not having to do such heavy lifting as when using full-depth supers, which is rather hard work for a man 60 years old, especially when one has to take care of over 300 colonies of bees all by himself in two apiaries 23 miles apart, my out-apiary being located in Etiwanda, San Bernardino Co., consisting of 100 stands of bees, all run for comb honey. Of course, I use the "shook swarm" plan in both apiaries, or else could not do the work all by myself. As it is, I have to "anticipate" (*a la* Doolittle) my work during the winter months by having my sections and shipping-boxes ready when the season begins, in order not to be hampered with extra work outside the regular apiary work, as so many bees will make one step lively sometimes.

Although we have had quite poor seasons for the last six years, I have managed to make a living out of my bees so far, besides being much healthier now than I was before coming to California. What I know about bees I have gleaned from GLEANINGS mostly, being a subscriber since 1882. Later I have added the *Review*, and lastly the *American Bee Journal;* and I must confess I should be lost without any one of them.

I have built up a fine honey trade right here in Pomona, and stamp my name on every first-class section of honey, Mr. York notwithstanding, as the merchants here do not object to it, and as I intend to advertise my honey and not have it mixed up with other products sold as "just as good."

Pomona, Cal., Sept. 21.

[There is quite a strong tendency toward shallower frames; and prominent bee-keepers, notably Geo. W. Brodbeck, of California, are using frames shallower than the Langstroth. By using such frames in the brood-nest as well as in the extracting-supers, we simplify hives and frames, and at the same time secure other advantages.



APIARY OF M. R. KUEHNE, POMONA, CAL.

And so, friend K., you are making the shake swarm plan a success (if it were not for Dr. Miller I would say *shook* swarm). We should be glad to have you tell us more about your method of working.—Ed.]

Heads of Grain
from different fields

FIGHTING DISEASE; FORMALDEHYDE UNSUCCESSFUL; PROBABLY NOT FOUL BROOD.

The Muncy Valley Bee-keepers' Association was organized some weeks ago for the purpose of fighting foul brood, as noted in a late issue. The association held a meeting Aug. 1, at which the subject of foul brood was thoroughly discussed. Mr. Fuller was present, and did much to make the meeting interesting and helpful.

It now appears that about a third of the colonies of bees in this section have been found diseased. It appears, too, that the treatment by formaldehyde has been unsuccessful except in one case treated by Mr. Fuller, in which he uncapped all capped comb, and extracted the honey. Up to the time of the meeting it seemed to be entirely cured, and the second hatching of young bees was coming out, which has not been the case with the others thus treated; for in each case the disease began to reappear between the third and sixth week after the treatment.

A new phase of the trouble also came to light at our meeting. Mr. Fuller reported an interview with Mr. Harry W. Beaver, of Watsontown, Pa., a man of large experience in bee-keeping in Cuba, where he gained a practical knowledge of many diseases of bees. The conclusion is reached that this which is making so much trouble in this section is not foul brood, as formerly known. It was stated that Mr. Beaver has had many diseased colonies this season, and that he intended to send some diseased combs to you for your examination. It also appears that thus far the carbolic-acid spray has been more successful than the formaldehyde treatment.

Muncy, Pa., Aug. 12. D. L. Woods.

[Is it not possible and even probable that black brood has stepped across the borderline of York State over into your country? I should be afraid of it. If it is not foul brood, and yet is fearfully destructive, it would look very much as if you had the New York bee disease, better known as "black brood."

The formaldehyde treatment, according to late reports, fails to disinfect combs unless they are *uncapped and empty;* but if it will be the means of saving otherwise good combs, it will be worth much to the beekeeper. From our present information, all diseased combs would have to be uncapped and possibly extracted, whether containing brood or honey. Such a course of procedure would be very likely to spread the disease, as it would be almost impossible to keep the infection from clothing, extractors, honey-knives, honey on the floor, and afterward being transmitted to robber bees.—Ed.]

SOURED HONEY—WHAT TO DO WITH IT.

Last spring I secured from another beekeeper a few hives of bees with Root queens in them. Wishing to increase them as much as possible I divided them. One nucleus that reared a young queen built up quickly and strong, and this fall I took 48 lbs. of surplus honey from them. Now comes the queer part of it. While the whole 48 lbs. was nicely capped, it was all soured full of air-cells, and foamy—tastes and smells distinctly sour. Now, that is something I never saw before. I should like to know the reason of it. I was thinking of using the honey as bee-feed to build up weak colonies, but intend to cook it first. Wouldn't it be a good idea to add sugar syrup to it? It seems to me that the fault must be in the bees, and that hive is marked for requeening. I will say for the old queen that, while this is her third season, she built a strong colony from a nucleus, and stored 85 lbs. of honey. J. T. Reno, Jr.

Jerico Springs, Mo., Sept. 24.

[Soured honey would be absolutely unfit to give your bees for winter food. I would advise you to extract all of it, and then feed the bees good clean pure sugar syrup. The honey that you extract you can improve somewhat by boiling; then for the purpose of stimulating brood-rearing you possibly can feed it out again to the bees next spring; but a better way would be to make honey vinegar of it. Such vinegar is much superior to ordinary cider vinegar.—Ed.]

WINTERING WITH THE COMB-HONEY SUPER ON TOP.

I winter my bees on their summer stands. I put an empty super on top of the brood-nest. I take the sections out and leave the section-holders in. I fill the super with old rags and papers. Any kind will do. They winter well for me, coming out in the spring in good order. I use the Danzenbaker hive. The weather gets pretty cold here—from about zero to 10° below.

J. B. Riddell.

New Florence, Pa., Sept. 28.

[Such a plan of wintering gives very good results, many times; but unless the bees are protected against prevailing winds it is also advisable to put a protecting case around the sides of the brood-nest. A powerful colony will very often winter outdoors without any protection whatever.—Ed.]

SECTIONS AT $10 A THOUSAND—A CORRECTION.

On page 713 you made some statements on the section question that I could not see through at all; but being a little fellow I held my peace in expectation that the Straw gentleman, or some other big fellow, would speak. As there was nothing said about it in the Sept. 1st issue, however, I will accept your invitation and "wade in."

You said that, with honey bringing 10 cts. per lb. net, the bee-keeper will not lose money if he pays $10.00 per 1000 for sections. Now, 1000 sections, 4¼×4¼×1⅞, weigh a little over 60 lbs. At 10 cts. per lb. they will return the bee-keeper just a little over $6 00. If he uses plain sections they will weigh less, and consequently return him less; and this does not take account of foundation at 55 to 60 cts. per lb., and of which he will use close to 2 lbs. in 1000 sections, however small he makes his starters, and he gets back only 10 cts. per lb. for it; so it seems to me as though, with a little freight added to the cost, the bee-keeper is dangerously near losing money on his sections now. Why can not sections be made of wood fiber or paper? F. H. CLARKE.

Coleman, Mich., Sept. 9.

[You are right, friend C.; but my brother-in-law, Mr. Calvert, who is so very accurate in figures, gave me the statement, and I accepted it as law and gospel truth. Of course, I should have figured it for myself. We shall have to consider, perhaps, that $5.00 per 1000, our present price, is as high as bee-keepers can go and not lose money. Comb honey that retails, we will say, at 15 cts. in the grocery will not net the producer much more than 10 cts. if we take out freight, commission, leakage, breakage, and, I am sorry to say, rascality once in a while. But it is a good joke on Dr. Miller that he did not notice it. I usually think that any statement I make, that is not subsequently called in question by the sage of Marengo, *must be* correct, for his eagle eye is almost sure to see an error, especially in figures.—ED.]

QUEENS STUNG IN A BALL.

Referring again to the matter of queens being stung in a ball, I still say that I very much doubt the physical possibility of such an act ever taking place in a swarm of bees left to their own disposition. But if there is any thing that will provoke bees to sting a queen it is to turn a blast of hot smoke on them when they have for some reason balled a queen. Likelihood or appearances of truth that speak of a case or question of fact which results from superior evidence or preponderance of argument on one side, incline the mind to receive it as the truth, but leave some room for doubt. It therefore falls short of moral certainty, and produces what is called opinion. I'm of the same opinion still, that queens are never stung while in a ball, but are starved and suffocated to death.

A few days ago I had a swarm issue, and the queen was immediately balled. This took place near the next hive. I at once picked them up and liberated the queen from the bees, receiving two stings on the fingers. Had I thrown a blast of hot smoke on them, there is a possibility that the queen would have been destroyed.

But it is the downright hard thoughts that have the courage to grasp the key of facts, and unlock the vaults and bring to light the long-hidden, long-forgotten volumes of science. Let them come forth, that we may all eat from the tree of knowledge.

Matanzas, Cuba. C. E. WOODWARD.

[Perhaps my views do not differ greatly from yours in the matter. I only stated that I had seen evidence enough to convince me that queens are stung in the ball, for I have seen the stings in their bodies after the ball has been picked to pieces. Since that time others have reported seeing the same thing. I am of the opinion that the average process of balling results in stifling or suffocating more than in stinging. I am also of the opinion that bees will sting queens sometimes in a ball, even when the same is not molested by a bee-keeper. But I may be mistaken.—ED.]

INTRODUCING VIRGINS; AGE OF AT TIME OF FERTILIZATION.

The matter on page 756, pertaining to introducing one or more virgins, is very helpful; but there are some difficulties in the way which to me seem insurmountable. Your new method saves from two to three days over what we are accustomed to use, which is an important item. From your account it seems easy to turn off good queens rapidly. In my experience I have never known young queens to take their flight under four or five days after being introduced, and three, four, or five days more before they begin to lay—in all, ten to twelve days. I have heretofore supposed that a virgin queen must not be kept over eight or ten days or she would never take her flight, and often not over five days. Now, if I have been wrong all these years you will do me, and probably others equally in error, a favor by setting us right.

W. S. BLAISDELL.

Victoria, Fla., Sept. 7.

[It is usual to figure, in queen-rearing practice, on about ten days for a young hatched virgin to begin laying. They often lay in less time; but a nine or ten day limit is the rule. It is now known that virgin queens are often confined in the cells until the bees are ready to release them. Some just-hatched virgins are much older in point of development and maturity than others. One ready to hatch may be confined in her cell, and fed regularly by the workers for several days. Such queens will sometimes fly immediately on emerging from the cell. How soon one such may take a wedding-flight after hatching I do not know. I have had one queen, to my own personal knowledge, take her wedding-flight when three days old from the time of hatching. I once conducted a series of observations to find when the first evidences of fertilization appear after hatching. It was from three to seven days.

The point that you do not quite understand is this: That two or three virgins may be caged in a hive at once. One will be released, we will say, in a day. It may take four or five days before she is ready to take her flight. In the mean time, all other caged virgins in the hive have reached the age of maturity. Queen No. 1 takes her flight, we will say, in five days. In three days she is laying, making eight days from the time of hatching. Immediately on her laying, another virgin is caged, when queen No. 2 of the first-caged lot is put in a condition to be released, which will take, say, four or five hours. In 24 hours from the time the other queen was taken out, queen No. 2 may take her flight. We will say she lays in three days. She is then removed, and queen No. 3 takes her place, and begins to lay, according to the cycle we figure on, in four or five days more. In the mean time, fresh virgins just hatched are caged, and confined while they are reaching the age of wedding flight. During this time they are also acquiring the scent of the bees, and so long as there is no queen in the hive to object or interfere, any one of them will be accepted by the bees; and if she is of the proper age she will begin taking her flight to meet the drone. Now, I do not mean to give four or five days as the absolute time from one laying queen to another. It will vary; but our experience is, on the average, two laying queens to a nucleus in a week or ten days.

On the single plan of introducing there would be four or five days lost in getting a just-hatched queen up to wedding-flight age. If we add three days more for her to lay in, there are eight days in all, taking just twice the time I have allowed for the dual plan of introducing.

The whole secret of the plan rests in the fact that the bees become acquainted, and are agreeable to three or four virgins *at once*. They all smell alike; and if they are released one at a time, so there can be no mortal combat between any two of the queens, all will go on lovely, and the cycle of mating and laying will take place in four or five days as against eight or ten days the old way. But to keep up the cycle a fresh virgin must be introduced or caged at the time of taking out the laying queen; so by the time No. 2 is ready to lay, No. 3 will be ready to meet a drone.—Ed.]

WIRED FRAMES AND STARTERS; WEED NEW-PROCESS FOUNDATION.

I see in Stray Straws, page 707, that Dr. Miller takes a peg at me again; but really you know our discussion was on full sheets versus starters, the wiring of frames being simply not in it. We all know that, with full sheets, we must have wired frames; but for starters it is not absolutely necessary. Mr. Doolittle says neither yes nor no to the wiring of frames; but his system of getting worker comb, page 426, necessitates cutting out the drone comb, and he goes as far as to speak of patching. Do you suppose this operation can be performed without cutting the wires?

Now with regard to full sheets on wired frames, I have a mind to give you a photo of a few to show that we do have failures here; and others, I might say, have had the same trouble. But right here I will say, hurrah for the Weed-process foundation! for with it our failures are reduced to a minimum. Geo. W. Strangways.

Elora, Ont., Aug. 26.

[I am of the opinion that Mr. Doolittle does not wire; and even if he did, he could easily insert patches of worker comb right on to a wire by cutting a shallow slit in the comb inserted. I would rather patch a wired comb than one unwired.—Ed.]

FEW COLONIES WINTERING WELL IN A CELLAR.

On page 230, in quotations, Ira Barber says a few colonies will winter fairly well in almost any cellar. Now, could four or six colonies be wintered in a tight dry-goods box in a medium dry cellar used for storing apples and potatoes, temperature sometimes going down to 30? It has a flue which could be heated by artificial heat if necessary.

If advisable to try, how much ventilation should the box have? and how ventilated? Would not the temperature be considerably higher in the box than in the cellar?

G. M. Ellenberger.

Belknap, Pa., Sept. 22.

[I would not put the bees into the box referred to. Better put them into the cellar, but darken it; and when you desire to get vegetables, use a lamp.

Ira Barber is right.—Ed.]

EXTRACTING HONEY FROM UNFINISHED SECTIONS; CAN IT BE DONE WITHOUT BREAKING THE COMBS?

Can honey in unfinished sections be thrown out with extractor without breaking out the comb? Lack of basswood honey this season left me with a lot of unfinished sections. As I have never used an extractor I ask for information.

Passumpsic, Vt., Sept. 8. C. R. King.

[Yes, it can be done very easily in the case of most sections that are fastened on three sides. Combs having only one or two attachments would have to be handled very carefully, of course, the speed of the extractor being reduced to where it would just throw the honey and not break the fastenings.—Ed.]

KEEPING EXTRACTED HONEY FROM CANDYING.

I want to ask a question in regard to keeping extracted honey from losing its freshness, or going to sugar. Is it necessary to seal it up air-tight, and to use an air-pump to extract the air from each jar in order to keep it fresh and in a good marketable condition? KIRBY SMITH.

Gibsonburg, O., Aug. 18.

[It is not necessary to use an air-pump. Honey should be heated to a temperature of 160 degrees, and kept there for ten or fifteen minutes, then bottled and sealed while hot, just the same as fruit is canned. Such honey, if properly put up, the cork covered with wax, paraffine, or beeswax, will remain liquid for nearly a year, and longer if the temperature of the room is not changed. For full particulars, see "Bottled Honey," in our A B C book.—ED.]

SWEET CLOVER IN KANSAS; AN ESTIMATE OF ITS VALUE PER ACRE AS A HONEY-PLANT.

Bees have done very poorly for me this season on account of cold wet weather in June, losing a few hives by actual starvation before I was really aware of it; and if it had not been for a three-acre field of white sweet clover I should have lost more, as this patch kept about 50 hives in fair condition. In fact, they went far ahead of the out-apiaries. I have sown this season five acres more, and next spring I intend to put out about 40 acres more, as I can rent land for this purpose at $1.50 per acre. I intend to put out mostly the yellow variety, as it comes in just at a time when there is nothing else, and the blooming-period is longer; but the three acres of white, I am satisfied, was worth to me this season $30, and I also have considerable seed from it.

R. L. SNODGRASS.

Gordon, Kan., Oct. 2.

[Friend S., I am glad to get a report to the effect that an acre of sweet clover is worth even as much as $10.00 for the honey alone. Let me now suggest that, when you get tired of growing the sweet clover, if you plow it under when it is about two feet high, before it blossoms, it will be of as much benefit to your land, and perhaps more, as if you plowed under a similar growth of common red clover.—A. I. R.]

AUTOMATIC SELF-HIVING.

Mr. Root:—The following is an idea in self-hiving: I sold a colony of bees to a neighbor last June. It contained a queen with a clipped wing. They were placed on a stand about 18 inches from the ground. Upon delivering this colony I informed the lady of the house that they would be likely to cast a swarm ere long. She hardly expected to hear this. However, an old hive was made ready, and by chance it was left on the ground in front of the colony purchased. They watched the bees for swarming, till tired and indifferent; so, upon going to the hive later they found that, instead of only one colony, there were two. The queen had rushed out on to the ground, found her way to the hive on the ground, and was hived with nobody to witness the proceedings. G. W. STRANGWAYS.

Elora, Ont., Can., Oct. 5.

[The plan you describe embodies the principles of the self-hivers that were talked of so much years ago. But self-hiving as a practical method has gone entirely out of use, so far as I know. I have made it work, but it is too much trouble. The appliances and the fussing necessary to make a swarm go automatically into another compartment involve more expense and labor than to hive in the old-fashioned way of letting the bees come back to an empty hive placed on the old stand, on the clipped-wing plan.—ED.]

BEES HATCHING WITHOUT WINGS.

Can you tell me what ails my young bees? They hatch out without wings, then crawl out and die by the thousands. By winter they will be all gone; and as we have 36 hives of bees we should like to know a remedy. SHERWIN COOLEY.

Calistoga, Cal.

[When bees hatch without wings the trouble may be due to several causes—chilled or overheated brood, or to poisoning. If the old bees gathered nectar from fruit-trees or sprayed plants, the same might kill some brood and allow other (although deformed) to mature.—ED.]

EFFECT OF STINGS ON HEALTH.

Is there any such thing as bee-poison ruining a man's health? I have been sick one or two days all the spring and summer. The doctors here can't help me. It seems to be a stomach trouble that comes about every six or seven days. I have kept bees 30 years on a small scale; have been stung two or more times every day. It never seems to hurt me any. I should like to hear from the readers of GLEANINGS about it. IRVING LONG.

Marceline, Mo.

[As a rule, bee-poison produces no serious effect on the average human system. But one who has kept bees for many years, and who has been stung a great deal, sometimes experiences unpleasant sensations when a hive is first opened during the fore part of the season. Langstroth was affected in that way, and there have been reports of a similar kind from time to time.—ED.]

KING-BIRDS AN ENEMY OF THE BEE.

In GLEANINGS for Aug. 1 I see that David Wauford thinks he has found some adulterated honey; but I guess all there is of it is a think or a guess-so. Last summer we had some that was the very same way, which we know was pure honey, and I think it came from raspberry-blossoms. There are many different flavors of pure honey. I think Mr. Wauford, in regard to his honey, is like the man who says king-birds catch drones only. Let them open a few and see. Every bee-keeper should shoot all the king-birds he can. There will be enough left then. They are the meanest bird that flies, to any other bird they can boss. A. E. MARLOW.

Cape Vincent, N. Y., Aug. 5.

SKUNKS, HOW TO TRAP THEM.

We have had some experience the past summer with forced swarms, which may be of value in showing the best way to make them. The greater part were made by drumming most of the bees and the queen up into a hive containing empty frames with starters, which was then set upon a bottom-board on the old stand. Out of all so treated, not one attempted to abscond; while the swarms that were brushed gave so much trouble that we gave up that plan altogether.

I notice that some of your readers have had considerable loss from skunks. I found that they were eating a good many of our bees, keeping some of the colonies weak, although they were rearing plenty of brood. Poisoning is dangerous at best, so we commenced trapping. By nearly burying an egg in the ground a short distance from the apiary, and setting a steel trap over it, we caught six or seven in a short time. The trap, of course, should be set only at night.

Besides scratching on the hives, as your A B C book says, the skunks would comb out the grass around the hive-entrances with their claws, to get the bees that came out of the hives, I suppose. The grass was so combed out in front of most of our sixty hives, before we began trapping. I find no signs of any depredations now, and the weak colonies have strengthened up considerably. F. H. HARVEY.

Battle Creek, Mich., Sept. 24.

DOES DISTURBING THE BEES CAUSE THEM TO BALL A QUEEN?

In manipulating bees in the fall after the honey season, as setting in sealed stores from the upper story of a swarm that has been used for extracting, is there danger in having the bees ball the queen if the apiarist uses lots of smoke? M. H. HILL.

Mattoon, Wis.

[There will be no danger of causing the bees to ball the queen; indeed, an excess of smoke would have the very opposite effect. Do not get the impression that smoke or disturbing the bees, from any thing that has occurred in GLEANINGS lately, has a tendency to cause the bees to ball the queen. The instances of this kind are so rare that they are hardly worth taking account of.—ED.]

"SOUTHERN HONEY" NOT OF POOR QUALITY.

It gives me special pleasure to see that you are trying to give the Southern bee-keeper's interest due consideration, and that you have left off using the term "Southern honey." The name is all right, but you know for what purpose it has been used by some. We passed that stage long ago. The war is over, and the bee-keepers of the South are taking special interest in their product. L. W. AVANT.

Atascosa, Tex., Sept. 19.

LIGHTING SMOKERS.

I have read so much about lighting smokers, etc., I thought nothing was equal to live coals. I find that, if one will roll a piece of crocus sack, laying a small piece of paper on it before rolling it up, then roll it up tight, and tie a string around it snug; drop a little coal oil on this roll or ball — not too much; light it; drop this ball into the smoker, then put in your wood, your fire is made. It will surprise you to see what a splendid smoke it will make, and the length of time it will keep the smoke. Do not make the roll or ball too large. Roll it up tight. H. BOOTON.

Richmond, Texas.

THE LEAN AND THE FAT YEARS.

I am not inclined to be critical, especially in matters that might properly be called non-essentials in this case; but I thought, after reading the editorial notice under one of Dr. C. C. Miller's Straws, page 792, I would suggest to you that you read up a little on the history of the children of Israel. I think you will find that the "lean years that eat up the fat ones" was a condition that occurred in Egypt rather than in the wilderness, and was a matter that concerned the Egyptians more directly than the children of Israel. A. J. KILGORE.

Bowling Green, O., Sept. 23.

[Your point is well taken, friend K. I had in mind the Israelites just a short time before they left Egypt.—ED.]

COVERING THE BROOD-NEST FOR WINTER.

Which is best to put over a brood-nest for covering in winter — coarse cloth, burlap, or enamel cloth? O. F. HERTZBERG.

Eaton Rapids, Mich., Sept. 1.

[This is a mooted question. It all depends on whether your locality has shown that absorbing cushions are better than sealed covers covered over with packing of some sort. But the general consensus of opinion, I think, is working slowly in favor of sealed covers. In that case we would use either enamel cloths or a plain thin board which the bees could seal down, the same covered with chaff, leaves, shavings, or any porous material that could be readily obtained.—ED.]

Beginners' Question Box.
By E.R. ROOT.

FILLING HONEY-CANS TOO FULL.

J. C. R., Ont., Cal.—Cans designed to hold extracted honey should never be filled quite full. When honey candies it expands; and if the receptacles be filled level full there is quite a liability of leakage, due to the cans bursting from the expansion of the honey when candying. Your honey is doubtless just as good as it ever was. The same can be restored to its original condition by putting the cans in warm water, or a temperature not higher than 160. Better empty out some of the honey from each can.

CURING LOAFING AROUND THE ENTRANCE.

J. G. B., N. J.—Loafing around the entrance is often caused by too small an opening during the hot part of the season. Enlarging it or lifting the hive off from the bottom-board, and separating it from the hive with two blocks, will very often cause the bees to go back into the hive and begin work. But if they still loaf while all the rest of the bees are working, it may be that they are preparing to swarm. But if that is not the case, and the bees are professional loafers, you had better kill the queen, and introduce some new and better stock. It does not pay to keep such bees when other blood that you can introduce may earn you possibly several dollars for the season.

BEES STINGING HONEY(?); HANDLING BEES TOO MUCH.

W. D. G., Ohio.—The clipping you send, about bees stinging their honey, is so ridiculous and absurd that we never pay any attention to it; for such nonsense seems to be going the rounds of the press while sober facts and truth about the bees, just as startling, are very seldom given to the public. See Pickings.

Referring to your questions, I would say it would do no harm to handle the colonies as often as you like; but there is no advantage in opening a hive oftener than two or three times a season if you desire to get honey, and do not care about the pleasure of watching and handling the bees.

It very often happens that there is a poor queen in a hive.

A COLONY THAT REFUSES TO ACCEPT A QUEEN.

W. H. S., Pa.—We do not quite understand what the trouble is you are having in introducing. If you have one colony to which you are trying to introduce a queen, and that seems disposed to kill all you give to them, you may rest assured there is some cause for it. The probabilities are that they have something they call a queen—a virgin or a fertile worker; and so long as either is present you will never succeed in introducing a fertile queen, especially one that comes through the mails, and bears the odor of outside objects. Rather than lose another queen you had better introduce her on a frame of brood with a few bees, then build the colony up for winter. But do not attempt to introduce a queen to a colony that has already killed off several queens, for when they once start out in the killing business they will keep it up. Give them a cell or a virgin from your own stock.

WHEN TO TAKE OFF SUPERS, ETC.

R. W. L., Ind.—Supers should be taken off the hives just as soon as the honey-flow stops. If you are a beginner, and do not know just when this is, you will see the bees are inclined to rob; and if they have any drones, kill them off. If the sections are left on they will be travel stained and soiled.

No, do not give the bees empty combs for winter unless you intend to feed them up. A better way is to reserve out a few of your good combs of sealed stores; then along in the fall, give colonies (that are not sufficiently supplied) a few of these combs. The colonies that are wintered indoors or in the cellar should not have less than 15 lbs. Colonies wintered outdoors ought to have from 20 to 25.

The Danzenbaker hives should be put in the cellar as soon as you have cold weather. The cellar should be darkened, and ventilated occasionally. You can winter them outdoors if you have regular Danzenbaker winter-cases.

WHY WOODEN CELL CUPS ARE BETTER THAN DOOLITTLE CUPS ALL OF WAX.

J. L., Texas.—You ask why we use wooden plugs instead of the wax queen-cell as used by Mr. Doolittle. In answer we will say that it takes so long to form these heavy wax cells, which must be strong and thick enough to bear handling, that we prefer to have the wooden plug made to receive the small delicate cell which we can press out at the rate of 1000 an hour. These cells, after they have been used once, are simply picked off the wooden plug, and another one inserted in about a quarter of a minute. It takes time and skill to dip the Doolittle cell cup, and it is only a matter of convenience that we prefer the wooden plug. In our own yards, as a rule we do not use the Tinker zinc form of protector around the cell. We tried this only to test the invention of Mr. Stanley as described in these columns. The object of this protector is to allow the bees free access to the cell and hatching queen without allowing the queen to escape. In this way they can be kept for some time in the hive where they hatch. We prefer a protector of the cylindrical shape we have already described, but having merely small holes — too small to allow the bees to pass through them. We see no special advantage in having the slots so large that the bees can get to the confined queen.

NOTES OF TRAVEL

BY A. I. ROOT.

MICHIGAN TRAVELS CONTINUED.

Toward night we made a brief call on Charles Shuneman, of Ionia, Mich. His wife is the bee-keeper, with the help the children give her. Well, just here we met an unexpected situation of affairs. I don't know that I ever before in my life found a bee-keeper (or bee-keeper*ess*) who was going to quit the business because of being *too* successful. Mrs. S. says she greatly enjoyed bees until this season. She had enjoyed studying them and building up colonies; and this present year all that marred her enjoyment was the fact that she had secured a tremendous honey crop! The honey was beautiful in quality and great in quantity; but she said it was too hard work for any *woman*, and her husband was in other business so he could not give her any assistance; so she wanted to sell out and give it up. If the crop had been more moderate, or possibly none at all, she might have gone on keeping bees. There are very queer things in this world of ours, and there are some funny people in it. Perhaps Mrs. S. may conclude that, with the help of the bright boys and girls around her, she may, after a winter's rest, go on with the bee business. The children were greatly pleased to see an automobile right in their own dooryard. But we were so much behind in our appointments that we had to hurry on.

Just at dusk we pulled up at the home on the hillside of A. H. Guernsey. Friend G. says I made him a call ever so many years ago while waiting for a train at Ionia; but I have been trying ever since to recall the incident. He pointed out to me some bees in a good-sized hollow log, with modern section boxes on top; and he said I was greatly interested in that log gum when I made that brief call more than twenty years ago; and as I looked at that apiary on the steep hillside there seemed to be a faint glimmer of something familiar in years gone by. Friend G. is a busy man; and when I saw him take a potato-hook in his hand, with a pail and lantern, in the evening, after his wife had whispered something to him, I begged to be permitted to go along and hold the lantern. Well, on another part of that steep hillside we dug some nice potatoes, and what do you think they were? Why, it was my old favorite, the Early Michigan; and it seemed to me as though only Michigan can produce such potatoes, so floury and appetizing, as we had for breakfast the next morning.

We were very pleasantly entertained over night in Lansing, at the home of Isaac Parker. We found friend P. in a very pretty little shop midway between his home and his bee-yard and garden. By the way, a pleasant tidy shop with convenient tools, each one in its place, is one of the pleasantest sights I know of around a bee-yard, or near any farmer's home, for that matter; but a shop that is full of disorder, the tools sticky with honey, and so full of rubbish you can never get through it, is any thing but pleasant to contemplate. Now, dear friends, don't any of you be in haste to put on the coat I have made, for the honey-house in "our own apiary," and another building where we store hives, cushions, etc., come pretty near the picture I have been trying to describe. Well, friend Parker has a very pretty shop, and he looked happy and contented when we found him at work there. Perhaps one reason why things were in such good order all around is that he and his wife are pretty well along in years, and, if I am correct, he has no other business on hand except his garden and small apiary. He probably has plenty of time to keep things tidy, and have his tools all in order. But I have wondered a great many times if it were not possible that a tidy shop *saves* enough time to pay for keeping it in order. I suppose there are extremes both ways. Sometimes I have thought it next to impossible for a busy man to keep every thing tidy — tools all under shelter when a storm comes up, etc. Then again, I have decided, when I have spent time enough in hunting for something to buy a new one, that it paid in dollars and cents to have things put away, besides the feeling of comfort and happiness that it gives to look around when you get up in the morning and find every thing in good shape. Another thing, friend Parker's home is emphatically a Christian home.

Our arrangements were such that we had time enough to make only a brief call at the home of A. D. D. Wood and sons, who have for many years done quite a business in manufacturing hives, etc., in Lansing. The warm welcome I received, even though my stay was so brief, I shall not soon forget.

When we passed through Lansing we had our machine overhauled again at the automobile factory, and they said our job of putting in the new shaft was all right. A few trifling repairs were made at Lansing, and we ran on to the town of Charlotte. This is another of the beautiful Michigan towns, with its great multitude of handsome up-to-date homes. We reached Charlotte at just sundown, and arrived at Hillsdale, 57 miles distant, before 11 o'clock. At this point I bade Huber good-by and went home on the cars, leaving him to manipulate the automobile alone. If any one of you is curious to know just why we parted company, I think I shall have to explain briefly that *he* was more interested in a certain young lady he became acquainted with while going to school in Oberlin than I was; and he rather wanted the automobile with him when he made *her* a call. Our trip through Michigan, and return, occupied us, with the calls we made on bee-keepers, about three weeks;

and I do not know that I ever enjoyed myself more in my travels anywhere.

Now, friends, in winding up this account of our Michigan trip I am painfully aware that we ran by perhaps a dozen friends who gave us an invitation to call. I felt pained to skip them; but I was already booked for a place in that carload of bee-keepers going to California. As it was, I was obliged to start off for California almost immediately after reaching Medina; but I enjoyed that Michigan trip so much that I am planning another one on the automobile next spring as soon as the roads are fair, and I expect to take in most of those we passed by on the above trip.

CALIFORNIA TRAVELS.

While in Chicago, business called me to the advertising agency of the Frank B. White Co. I had become somewhat tired of the din and racket of the great city. I had many times looked up at the great sky-scraper buildings, and felt a desire to visit one of them; so when I was told by the elevator boy that this agency was away up, if not clear up, on the uppermost floor, I felt rather glad. When I was ushered into the office of President Long he seemed so full of business I hesitated a little about asking him to leave his work to serve me in a personal matter. When told, however, that I represented GLEANINGS IN BEE CULTURE he excused himself through the telephone, and asked those in the office to call again a little later; and then he surprised me by saying that, while I was already there in their place of business, he would like to show me around a little. This firm devotes its whole time to agricultural advertising—that is, advertising for the agricultural papers, rural industries, seedsmen, etc. They have a wonderful system of dividing the business up into departments. Each department has an office by itself; and as they are away up above the other buildings (I might almost say they are above the smoke as well as above the racket), each office has a large broad window, affording not only plenty of light but plenty of better air than one gets in the streets below. The view out of these windows across the city, taking in the green parks and a beautiful view of the lake, was of itself to me inspiring. It was pleasant to find that the occupants of each office knew about GLEANINGS.

I confess it was a pleasant surprise to me to see what the agricultural advertising of the United States amounts to. This firm makes a business, not only of writing advertisements in an attractive form, but they have very much to do with this modern fashion of putting in some kind of picture to arrest the attention, and perhaps make you laugh. Truly, successful advertising at the present day is one of the fine arts; and this establishment includes a great variety of artists. I do not know that they make seed catalogs, but they furnish designs for the covers in all the beautiful colors we notice with the advent of each new year.

After I had looked the offices all over, and had a brief talk with the occupants, Mr. Long very kindly went down to the office of the Santa Fe Railway with me. I told him what I wanted the railroad company to do for me, and he said they were exceedingly willing to accommodate. But the railroad men had been swindled so many times they were very cautious about granting favors to strangers. We had been doing some advertising for the Santa Fe road, and I wanted some accommodations on my route home that they had not exactly agreed to grant.

Let me say a word in favor of the railroads just here. During the G. A. R. encampment all the roads had granted a very low rate of travel. In fact, these tickets were sold at so low a rate that one might sell his return ticket alone, while in the far West, for more money than he paid for the whole round trip from Chicago; and the red tape we have to go through with in buying a ticket, and using it, is to prevent these same swindles.* I once had a ticket offered me at a very low rate to some place I wanted to go. But the broker explained that I would have to sign the name of some other person than myself; that is, I would have to pretend I was "the other man." When I protested against that method of doing business he said, in an off-hand way, "Oh! that's nothing; it is a common every-day occurrence. Nobody thinks any thing about its being out of the way."

Now, I hope, dear reader, this statement is not true. God forbid there should be many men in this land of ours who are willing to pretend they are some other man, and sign his name to it in order to save a few dollars. When the railroad people understood I was one of the editors of GLEANINGS they very cheerfully granted my request, without a word of objection; and I was exceedingly well pleased with my treatment during my whole trip on the Santa Fe. In the first place, the whole road-bed is *oiled* from Chicago to the Pacific coast, so we had no dust on that whole trip occupying nearly a week. There was not dust enough to prevent having the windows open every day, and night too, for that matter, with the exception of about half an hour when we were running through a small dust-storm on the desert. In the extreme West the *engines* all burn oil, so there are no cinders flying, even if you do put your head out of a window to get a better view of something.

In passing through Kansas next morning I caught sight of an apple-orchard that seemed to be almost a mile long, right beside the railroad. I asked somebody if it were possible that those were all apple-trees. He replied, "Oh, yes! that is a big apple-orchard that belongs to a man whom everybody thought was crazy. He planted three-fourths of a section in a locality not supposed to be very favorable for apples. Last year his crop sold for something like $40,000. You see there was a scarcity almost everywhere else, and his trees all happened to bear a wonderful crop.''

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* On both the Santa Fe and Southern Pacific, when I wished for a "stop over" I was obliged to leave my ticket with the depot agent; and this agent is under orders to hold said ticket until thirty minutes before the train leaves. This is to prevent the holder of the ticket from selling it while he is around where "scalpers" are.

So you see, friends, that people who go into these things on such a terribly large scale, once in a while turn out to be not so crazy after all. I think one of the agricultural papers stated this man's crop for last year alone almost paid for the entire plant.

A good many of the passengers in our tourist car had never been through the mountains and deserts before; so I was frequently called on for explanations, which I felt very glad to give. The first really startling piece of scenery was the Canyon Diablo, a little this side of the Grand Canyon. Our courteous conductor gave us notice that in a few minutes we would pass over the celebrated chasm, and warned us to be on the lookout. Before we reached it we passed a great many places where the water had cut great channels through rocks, sometimes beside the railway tracks, and oftentimes right under them. Well, this Canyon Diablo is so narrow at the top that it is easily spanned by an iron bridge having no support from one side of the great crack, or rift, as it looked like, over to the other. When I looked down from the side of the car it did not seem to be very deep after all; but there was something about it that looked strange and uncanny. I have frequently passed over bridges one or two hundred feet above the water; but when we were told of the awful depth below this bridge we could hardly believe it. The eye refused to credit it. As I write I am not able to give the exact depth of that chasm; but I think somebody said it is 1300 feet.

Before night of the same day we stood on the brink of the Grand Canyon, which I have already described. Monday afternoon, when we started on our trip, there was considerable said about the heat we should experience in passing the Needles, where the railway crosses the Colorado River. The Needles are about as far west as Yuma on the Southern Pacific. Unfortunately we passed it in the night, so I could not get a view of the wonderful river we had been thinking and talking about at the Grand Canyon.

Tuesday morning we opened our eyes and found ourselves in California. After the convention was over, as I had business in San Diego I was urged to make a call on a Mr. G. M. Hawley who lives at San Jose, in a beautiful valley about fourteen miles out of San Diego. On our way out, friend Hawley said I must stop long enough to see a neighbor of his, a woman who for several years worked in his father's family as a hired girl. When pretty well along in life she took a notion to grow strawberries; and right out in the desert, on a little piece of ground in a locality where nobody else thought of growing strawberries, she had one of the finest strawberry-ranches I ever saw anywhere. It looked funny to see a little woman, well along in life, directing a lot of men how to do their work. The berries were the variety called the Arizona Everbearing. You may remember this berry was distributed quite extensively here in the States, but never made very much of a mark here in the East. With the mild climate of Southern California, and plenty of water for irrigation, it was just doing wonders. Perhaps not as many berries lay ripening around the hills as we often see here in Ohio; but this woman picks berries, and carries them to market every day in the year from *February till November*. For size, perfect color all over, and beauty of shape, I think I never saw any finer ones. I was invited to help myself freely, and I can certify that they are not lacking in quality. Friend Hawley informed me that she had probably lost quite a little money by agreeing to let a certain man in San Diego have the whole crop at a uniform price of ten cents a box. This box holds something between a pint and a quart. The reason why she lost money is that she succeeded in growing larger and finer berries than anybody expected to get. Yes, they were larger and finer than even *she* expected to get. By constant application she had learned the trick, and had become an expert; and she could beat anybody else in that region in growing strawberries. The men who work for her saw exactly how she did it; but I very much doubt whether those same men could start a strawberry-patch of their own, and manage it as she does. This woman is, perhaps, uneducated, and she does not speak our language very well; but it was as much of a pleasure to take her by the hand, and raise my hat to her as I spoke, as to meet and talk with some of the greatest and most accomplished ladies of our land. In middle life, by some misfortune, if I am correct, she was obliged to shoulder a considerable debt. This she had paid all off honorably; had paid for her land, and is now getting in comfortable circumstances financially.

Further on, friend Hawley showed us the beauties of the picturesque San Jose Valley. One of the prettiest sights as we looked from the sides of the mountain down into the valley was a vineyard of many acres, the vines all looking green and thrifty, and yet they do not get a drop of water in the way of irrigation. When I told this story in other places in California, they thought I must be mistaken. This shows that there are scarcely any two localities, even in California, where *all* the conditions are exactly alike.

And now, friends, I am going to startle you a little with an item on bee culture. Friend Hawley, with all of his other work on hand in the way of fruits and fruit buying and selling, has done quite a little in raising queen-bees—not for sale, but for his own use. About three years ago he told friend Doolittle he wanted a queen that would help him to repress swarming. Now, to tell the truth I have had but very little faith that any of our queen-raisers could furnish a queen that would be any very *great* help in this line. Perhaps my lack of faith was because I was not keeping track of what was going on. Well, now, here is friend Hawley's story. If I have not got it straight I am sure he will kindly straighten me out. He raised quite a nice lot of queens from that non-swarming queen-bee. I do not know just how many, but he had an apiary of 60 hives from this special queen. And now just hold your breath. Not one of the 60 hives sent out a swarm. They just kept piling in the honey through the whole season, from start to finish, and averaged *400 pounds per colony* of extracted honey. The rest of his hives, containing queens from other sources, all swarmed and kept swarming, and accomplished comparatively little in the way of honey-production. When I told this story at the convention, Mr. McIntyre (or somebody else) said one reason why the 60 did not send out any swarms was because they all had *young queens*. This great yield was two years ago. One year ago, and the present year, the crop was very poor in the San Jose Valley. I do not know but some of you may think that friend Doolittle has been hiring me to write up his breeding-queens. I confess I always feel it a pleasure to write up Mr. Doolittle or anybody else when I come across items like the above, incidentally. But the great point in Mr. Hawley's report is that it indicates the possibility of getting a strain of non-swarming bees just like the non-sitting strains of common fowls.

Dr. Miller and I were both disappointed in selecting beautiful-looking specimens of fruit from fruit-stands in Los Angeles. Let me say, by the way, that a beautiful stand right across the street from our rooms in the Hotel Gray was kept open night and day. The whole stock in trade, or nearly so, was out on the sidewalk; and perhaps they found it would be about as cheap to hire somebody to watch the fruit all night as to undertake to carry it indoors. Well, when I visited friend Hawley he asked me to taste of peaches, plums, oranges, etc., of his own growing, that were certainly equal to any thing grown anywhere in the world, so far as my experience goes. In fact, I tasted so many of the luscious fruits I had to go back to the beefsteak diet, and not touch fruit of any sort for several days.

I now want to say a word about Hotel Gray, where friend Brodbeck saw fit to domicil Dr. Miller and myself. Mrs. Gray used to be a bee-keeper, and take GLEANINGS. Somebody said she made money enough with bees to build a hotel. I asked her if it was true, and she said it was at least *partly so*. Well now, all the time we were staying at Hotel Gray we did not smell tobacco smoke; we did not see any evidences of tobacco spit, and nobody puffed tobacco smoke in our faces while we were on her premises. I asked her how she managed it. She said she did not exactly know how it came about, unless people took it for granted that a hotel managed by a woman ought to be clean and tidy and sweet-smelling. She furnishes rooms only — not meals. We had a very pretty spacious apartment, with windows and doors opening out on the street, covered with screens to keep out mosquitoes, with bath-room and closet especially for that apartment and no other, at $1.50 per day. The room was nice enough and large enough to hold bee-keepers enough for quite a little convention. Yes, and that big bottle of distilled water that Dr. Miller told you about was kept replenished in the bargain. Now, some of you may think 75 cents per day is a pretty good price for a room without meals. But please remember this is right in the heart of the city, with four large windows to the room, fronting the street, only two flights of stairs up.

WHAT DOES IT COST PER MILE TO RUN AN AUTOMOBILE?

Perhaps we might in the same line ask the question, "What does it cost a mile to travel with a horse and buggy?" In hiring liveries in different parts of the United States I have found they generally want about $1.50 for hitching up. In a good many places they will not hitch up for less than that. Charges in Florida, California, Michigan, and Ohio are not very much different. For $1.50 they will drive you ten miles. If you want to go more than that, the expense, with average fair roads, is about 10 cts. a mile. Of course, a man has to go along with you to bring the horse and buggy back. If you bring the rig back yourself they generally make you a little better price. This is not very accurate, it is true, but it is a sort of estimate. Liverymen consider it worth about 10 cts. a mile, and for this price you should get a respectable-looking rig, with a top on to keep out the rain, and a robe if it is cold weather. As a liveryman has to make a profit, it probably costs less where you have a horse and buggy of your own. If you use the rig once a week, or less often, it may cost you even more than the above. Of course, the buggy will wear out, and so will the horse; and you have not only got to feed him but you must have a tolerably good-sized barn to hold the hay and grain.

Now, I am not going to make a defense of the automobile — that is, I am not going to talk as if I had one for sale, for I am not at all interested in the sale of any of them. I clip the following from a recent number of the Cleveland *Leader:*

> COLUMBUS, O., Oct. 8.—William Huston, who recently made an 8000-mile trip through the East in his automobile, to-day figured out the cost of keeping his machine in repair during such steady and hard service. He finds that the mere cost of operating his automobile was ten cents a mile, divided as follows: tire maintenance, five cents a mile; gasoline, two cents a mile; general repairs, three cents a mile.

My experience would indicate that the above is much too high. The writer probably has a large machine that cost $1500 or $2000, and will hold several persons; otherwise his gasoline certainly would not cost 2 cts. a mile. Where we get the gasoline by the barrel here in Medina it does not cost us more than half a cent a mile for gasoline. With one who is an old hand with the machine, and knows exactly how to use it, like the man with the horse and buggy, I do not think the repairs should exceed one cent a mile — perhaps not more than half that. As the cheapest machines cost, however, about $600 or $700, the depreciation in value perhaps might make it a good deal more than I have mentioned.

The last item is tires. Three tires have failed with our machine in traveling perhaps 3000 miles. Two of them can be repaired so as to do a good deal of service yet; but one was condemned by the manufacturers as fit only for the scrap-heap, but was replaced as the guarantee had not expired. Perhaps we might say one tire, worth $15, has been used up. This would make ½ ct. a mile for the tires only. But a large number of people who have used autos for long runs say my tires were not what they ought to have been, or else they have had very hard usage. A good many tell me to use solid tires, even if I do get a little more bumping. I have never tried them on an automobile. The manufacturers told me that nobody wants to ride with a solid tire; and when we come to consider that the automobile is the easiest-riding vehicle in the world — that is, as we have it now — I am afraid we can not consider solid tires. My opinion is, tires ought not to cost to exceed one cent a mile; and I think our manufacturers and inventors will soon give us easy-riding tires that will not cost that amount. It is hardly fair to contrast an automobile, that carries you with so few bumps that you can ride 150 miles a day without being wearied at all, with our best metal-tired carriages. You could put metal tires on the automobile, I presume, but it might be a little harder because of the jolting of the machinery. As friend Doolittle has an automobile, and has probably used it quite a little by this time, I wish he would tell us how much per mile it costs him to run it. He will know, for he is a very careful man.

HIGH PRESSURE GARDENING BY A. I. ROOT.

THE SLOE PLUM.

Two or three years ago this plum was mentioned several times, and we planted three or four trees that bore quite a crop last year, aud a much larger one this year. I have never seen one stung by the curculio, and they never rot on the trees. I consider them one of the most delicious plums I ever tasted, but perhaps many would not agree with me. I suppose they are a variety of the wild plum. I saw something very much like them in South Dakota. They were there in the market, and I have also found them in different places. They are very handsome, much resembling in shape and color a beautiful cherry, only larger. They ripen very late—about the first of October. We find them very nice for canning. They have a peculiar flavor unlike that of any of the tame plums. I believe the same thing has been sold by nurserymen under the name of "Japan plum." There is a peculiarity about them belonging more especially to most wild plums. The tree, if allowed to, will send up suckers all around, and these suckers commence to bear when they are about as high as currant-bushes. If I am correct, the variety is a constant bearer, producing good crops every year; and, as I have said before, so far they are immune to both curculio and the plum-rot. I presume the trees can be furnished by almost any up-to-date nurseryman.

LIPPIA NODIFLORA, OR LIPPIA REPENS; CARPET GRASS, ETC.

The following we take from one of the government bulletins:

A LAWN-PLANT AND SOIL-BINDER FOR ARID REGIONS.

The great value of a plant which will form a satisfactory sward, and prove a successful soil-binder under the conditions of the arid region, will be readily admitted. The observations and experiments of the Arizona station, supplementing experience in Southern California, indicate that these requirements are met to a great extent by lippia, or fog-fruit (*Lippia nodiflora*), a plant belonging to the same family as the lantanas and verbenas. The plant is found in tropical and sub-tropical regions, and occurs in this country in the South Atlantic and Gulf States, and from Texas to California, principally along sandy shores and water-courses "It is a perennial, herbaceous, much-branched, creeping plant, the stems of which root extensively at the nodes. The thickened opposite leaves are an inch long or less, mostly blunt at the tips and rather sharply 'saw-toothed' above. The roots become greatly thickened below in autumn, and this reserve-food supply undoubtedly enables the plant to begin growth in the spring with little or no rain, and also to maintain itself during long adverse periods" It has practically no value as a forage-plant, because it develops a relatively limited vegetative growth, and animals dislike it; but the observations of the Arizona station indicate that it can maintain a continuous layer of green with less water than any other desirable plant known to that region. During the summer of 1902 it maintained itself for eight months on the mesa with less than two inches of rainfall. Not only is it a remarkable drouth-resister, but it can endure without injury extremes of temperature varying from 10 degrees to 110 degrees F. It is, however, only slightly resistant to alkali, although it has been found to thrive in soils too alkaline for roses

The plant possesses special advantages as a sand and soil binder. "When set two feet apart in favorable situations, it was observed that well-rooted plants of the fog-fruit covered the surface completely during only one season's growth; and there is every reason to believe that it will do equally well in moist sandy washes, since it favors such locations"

It will doubtless prove equally effective in preventing washing of reservoir and stormwater embankments.

As a lawn grass for regions in which the usual lawn grass is grown with difficulty, if at all lippia seems to have peculiar advantages. It is very easily grown, and "forms a smooth carpet of green, interspersed with many small capitate flower-clusters of rose-purple, varying to nearly white. In general, it gives all the effects of a white-clover lawn, though forming a more compact mass, and not requiring the use of a lawn-mower." It is not suited to densely shaded lawns, and will not endure excessive tramplings.

The plant is propagated by cuttings. The best time for planting is "during the spring or summer months, when, if well watered, it will be almost certain to secure a good start." The publication by the Arizona station of information regarding this plant has aroused much local interest, resulting in a quite extensive distribution of plants by this station to persons wishing to try it.—*Farmers' Bulletin 169.*

I found the lippias in two or three places in California. Prof. Frank Benton, who was with us, said, if I am correct, that the carpet grass, of which so much has been said of late, is really *Lippia repens* instead of *Lippia nodiflora*. At Safford, Graham Co., Ariz., one of the bee-keepers, a Mr. Jefferson, had his dooryard planted with the lippia. He set out his plants, I think, last spring, and the older ones made a thick carpet of beautiful foliage covering nearly a square yard each. It propagates something like the strawberry-plant. The question is often asked, "Would it stand our Northern climate?" The article we have copied indicates, if I am correct, that it would stand ten degrees above zero. I think with some protection such as straw or strawy manure it might stand over winter here in the East. Can somebody tell us more about it?

20 THOROUGHBRED MINORCA COCKERELS. Fine. Price 75c to $1.00 Worth $2.00 each.
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FOR SALE.—White-clover extracted honey in 60 lb. cans, at 7½ cts. One can, 8 cts. No local checks received. DR. C. L. PARKER, Sta. A, Syracuse, N. Y.

Cuba.

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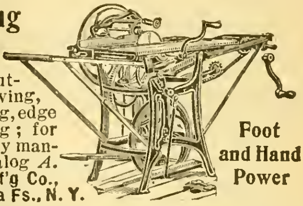

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For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
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Root's Goods in Central Michigan!

Special prices until April 1, 1904. Write your wants; let me name prices. Supplies exchanged for honey.
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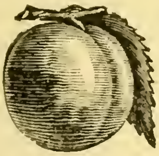
Fruit-growers read the best fruit-paper. SEND TEN CENTS and the names and addresses of ten good fruit growers to SOUTHERN FRUIT GROVER, Chattanooga, for six months' trial subscription. Regular price 50 cents. Best authority on fruit-growing. Sample free if you mention this paper.



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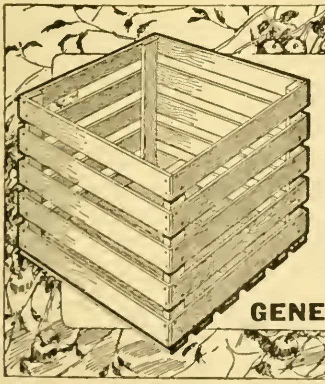

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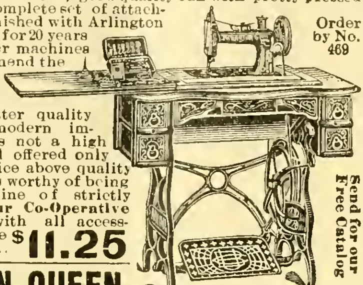

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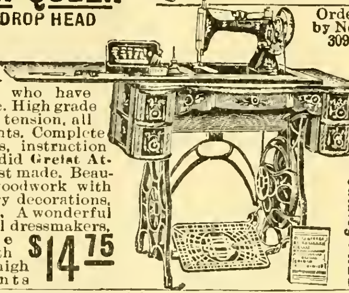

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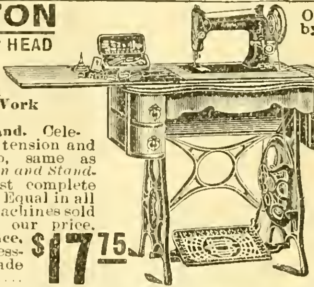

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It provides the cheapest and most productive food. Hens can't help laying when fed green bone. We'll send you a **Mann's Latest Model** on

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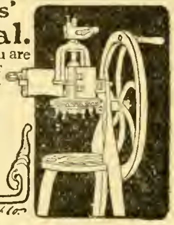

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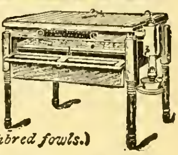

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THE DANDY BONE CUTTER

will double your egg yield. Thousands of poultry raisers say so. It costs less, turns easier, cuts faster and lasts longer than any other. Price $5.00 up. **Sold on 15 Days' Free Trial.** Send for book and special proposition.

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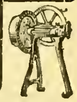

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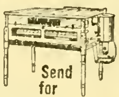

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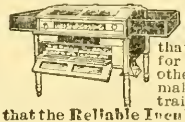

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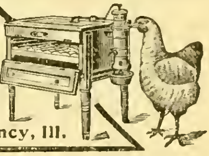

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**Humphrey Bone Cutter,
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will double egg yield. Poultry Book sent free.

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TWO ARTICLES

pretty nearly fill the BEE-KEEPER'S REVIEW for October. One is by R. L. Taylor on that old subject, "The Cellar Wintering of Bees." Of course, it is an old subject, but Mr. Taylor has the faculty of saying new things on old subjects as well as telling old things in a new way, and his five-page article pretty thoroughly covers the ground from the choice of a spot in which to build a cellar until the bees are taken out in the spring. By this way, his idea as to when bees should be taken out, is well worth considering and trying.

The other article is by the editor, occupies 10 pages, and is a pen and camera picture of California bee-keeping. Finer pictures (some of them full-page) of California bee-keeping have never been published. An especially beautiful view shows Rambler's old apiary near Los Angeles. In this article the editor tries to show up California bee-keeping as it really is—giving both lights and shadows.

Send ten cents for this issue, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, = Flint, Mich.

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one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.

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the world's record, a powerful runaway auto, at Zanesville, O., fair, ran into Page Fence and was stopped after killing or injuring over 20 persons.

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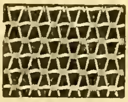

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100 Varieties. Also **Small Fruits, Trees, &c.** Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **Lewis Roesch, Fredonia, N.Y.**

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Victor's Superior Italians

go by return mail again. Owing to several large queen contracts, a contract for a *solid carload* of bees that went to Colorado, 85 three-frame nuclei to same State, numerous smaller orders for bees, and a good queen trade, it has been necessary for me to cut out my ad. for the past three months to keep from being swamped with orders. I am glad to notify my patrons that I am at last able to fill orders promptly with as fine queens as ever headed a colony, regardless of their source, at the following reasonable prices :

1 Untested queen, 75c ; six, $4.00.
1 Select untested queen, 90c ; six, $5.00.
1 Tested queen, $1.00 ; six, $6.00.
1 Select tested queen, $1.50 ; six, $8.50.

Breeders, $3 00 to $7.00 — these are as good as the best.

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Queen-specialist.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5 00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, $1.00 each. Untested, 75c; $8.00 per doz.

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EXTENSION AXLE NUTS

Make old buggy run like a new one. Sure cure for wabbles and rattles. Quick seller and very profitable. AGENTS WANTED.

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Money-making Queens

are those whose bees GET THE HONEY. Two of my customers have tested well on to 1000 QUEENS of my strain, and are buying more.

My queens in Cuba do extra well. They swarm but little, and get honey while others are starving in the summer, and make big yields in honey season. Several of the largest bee keepers claim they get better results from my strains than from any others.

Queens, 75 cts. each; dozen, $7.50. Selected, $1.00; six, $4.50. Warranted purely mated and good queens or replaced tested, $1.25. Select. $1.50. Extra. $2.00. Circular. **J. B. CASE, Port Orange, Fla.**

Reduced Prices.

Good for the balance of this season only. As I desire to unite my nuclei as soon as possible, I will sell queens at the following low prices, until my present supply is exhausted: Untested queens, 60c each; six or more, 50c each. Select untested, 75c each; six or more, 60c each. Tested, $1 00 each; select tested, $1.50. Safe arrival and satisfaction guaranteed. Queens sent by return mail unless otherwise directed.

J. P. Moore, L. Box 1, Morgan, Kentucky.

Pendleton County.

QUEENS--ATTENTION !--QUEENS.

To have the best queens in every line, plenty of them, to merit your orders by accurate mailing, delivered in good order. Prompt attention is our fixed purpose. Full colonies and nuclei a specialty. Write for catalog and prices.

The Jennie Atchley Co., Box 18, Beeville, Tex.

Sections, Shipping Cases, Honey Cases,

and every thing necessary for the bee keeper.

FINE ITALIAN QUEENS.

Prompt shipping. Catalog Free.

C. M. Scott & Co., Indianapolis, Ind.

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Finest Grades Extracted Honey for Sale !

Three kinds, clover, celandine, and buckwheat Prices from 5½ to 9 c. per lb., according to kind and quantity wanted. This honey is better ripened than any comb honey on the market. Extracts from letters from some good judges :

Bell Branch, Mich., Oct. 9, 1903.

O. H. Townsend, Otsego, Mich

Dear Sir:—Yours received, and the honey is very fine. In fact it is the best that we have received samples from this year. M. H. HUNT & SON.

Sample of honey is received, and the quality is superb. WALTER S. POUDER.
512 Mass. Ave., Indianapolis, Ind.

Good enough for a king. A. V. BISHOP & Co.,
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A four-drachm sample of either kind of this honey sent by mail for six cents. Address

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Wholesale Dealers and Commission Merchants in

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POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE. **Inland Poultry Journal, Indianapolis, Ind.**

CONVENTION NOTICES.

The Connecticut Bee-keepers' Association will hold their fall meeting in the capitol. at Hartford, on Nov. 4th. All bee-keepers are cordially invited to attend. For full information write the secretary.
Watertown, Conn. Mrs. Edwin E. Smith.

The Minnesota Bee-keepers' Association will hold its next meeting at Minneapolis, Dec. 2 and 3, at the same time and place the horticulturists meet. An excellent program is being prepared, and will be ready to mail by Nov. 10. Getting a better price for our honey will be presented by two of our best members. This year the Agricultural Experiment Station has bees, and Entomologist F M. Washburn will give you the benefit of his experience. H G. Acklin,
Chairman Executive Committee.

The Missouri State Bee-keepers' Association will meet in Mexico, Mo., Dec. 15 1903. Mr. J. W. Rouse, of that place, will act as host to direct the attendants to the hall, which is free to all who desire to attend. Board can be had at the leading hotels at $1.00 to $2 00 a day. Come, everybody who is interested in bees and honey. Let us have a big meeting. We now have 51 paid up members. Let us have it 100. Procure certificates from your local railroad ticket agents when you purchase your tickets. It may be you can return for one third fare. W. T. Cary, Sec.

OUR ADVERTISERS.

The man or woman, boy or girl, who wants to succeed with poultry ought by all means to have a copy of the new annual catalogue of the Reliable Incubator & Brooder Co., of Quincy, Ill. The book, which is sent free to Gleanings subscribers. will convince any one who contemplates buying an incubator or a brooder that the "Reliable" is as good as its name indicates; and there is a lot of valuable information in it about hatching and the care of poultry which is new to all but a few experts who are making fortunes out of poultry. If you mention Gleanings you will get prompt reply to any inquiry sent them.

Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must SAY you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To sell strawberry-plants. Catalog free. North Star Plant Farm, Cokato, Minn.

WANTED.—To sell 75 colonies bees in good shape; will sell cheap. G P. Cooper, Pikeville, Tenn.

WANTED. To sell choice alfalfa honey, in 60-lb. cans. Prices quoted on application.
W. P. Morley, Las Animas. Col.

WANTED —Beeswax. Write for prices. To sell new Tokologys at half price.
A. L Dupray, Camanche, Iowa.

WANTED —Comb and extracted honey; state price, kind, and quantity.
L. H. Robey, Worthington, W. Va.

WANTED.—Names and addresses of those who want good books or sheet music. Ask for prices on what you want. M. T. Wright, Medina, Ohio.

WANTED. —To sell 50 bee hives with supers, frames, and sections for cash; have hives used one season; $35.00 takes them. Write to
O. E. Erickson, Bloomer, Wis.

WANTED.—To sell Angora kittens; perfect pets and beauties, 4 to 6 months old; colors, black, blue, orange, and gray. Prices: Males, $5 00; females, $4.00; pairs, $8 00. Early orders secure best selection.
J. W. Deane, Maple Hill Farm, Freedom, Me.

WANTED.—You to read the adv't of ginseng on page 781, Sept. 1. For prices address
A. P. Young, Cave City, Ky.

WANTED.—To correspond with parties having apiaries for sale in Southern California, or Maricopa County, Arizona. Wm. Pearson, Colfax, Iowa.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address Henry Alley, Wenham, Mass.

WANTED.—To buy quantity lots of choice white-clover comb and extracted honey. Price must be low. B. Walker, Clyde, Ill.

WANTED.—The address of all who are still in need of cartons. Quirin the Queen breeder.
Parkertown, Ohio.

WANTED.—To sell 15,000 lbs. best white-clover extracted honey in 60-lb. cans, at 8½ cts. per lb.
Walter S. Pouder,
512 Mass. Ave., Indianapolis, Ind.

WANTED.—To exchange a two hundred-egg Reliable incubator, been used very little, for choice comb or extracted honey. Chas. Koeppen,
Fredericksburg, Va.

WANTED.—Bee keepers to try our printing, 100 envelopes, note-heads, or statements. 40c; 250, $1.00. All postpaid. Can use queens and berry-plants in exchange. M. T. Young, Girard, Pa.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED —To sell full colonies Italian bees in 8 or 10 frame Dov'd hives, with plenty of honey to winter, $5.00 each, in lots of 25, $4 50 each.
F. A. Gray, Redwood Falls, Minn.

WANTED.—To sell 140 strong colonies of pure Italian and hybrid bees in one-story 8-fr. L. hives; wired combs built on foundation; winter stores. Price $420. Also complete outfit cheap. No failure in 10 years.
T. H. Waale, Sara, Clarke Co., Wash.

WANTED.—An experienced and trustworthy dairyman and farmer, with two grown boys. to milk and care for 40 cows; stable has cement floor, and water-basin in each stall; milking hours, 4:30 A.M. and 2 P. M. Wages $800 per year with house-rent and garden. When answering this ad. state your experience in dairying, and give references; state age, and age of members of family. J. P. Watts, Kermoor, Pa.

WANTED.—To sell apiarian outfit in good honey country in Minnesota. Raspberry, plum, white clover, willow herb, basswood, and goldenrod. 220 colonies of Italians; 400 supers, 2 extractors, and all necessary appliances. Also buggy, Barnes saw, and honey-house 12x24, built in sections. Also use of house till April next. Bees all in good condition for wintering. What offers?
Write X Y Z, Gleanings, Medina, O.

WANTED.—To sell my apiaries in St. Francis River bottom, Ark., 230 colonies in 10 frame dovetailed hives, 175 Danz. supers, 75 4¼x4¼ and 60 shallow extracting (5⅜) supers, 55 extracting hives, and all necessary appliances. Bees in prime condition for wintering. Main honey resources, tupelo gum, willow, buttonbush, horsemint, coleus, and smartweed, besides others too numerous to mention. This year's full crop, 10,000 lbs. comb honey. A fine locality for queen rearing apiary. J. H. Zeiner, Bard, Ark.

WANTED.—To sell machinery for bee-hive factory, consisting of 10 h. p. horizontal boiler and 8 h. p. engine combined on skids. Four-piece section-planer saw, capacity 150 to 180 pieces per minute; dovetailing table, rip saw table, cut off table, turning-lathe, all of heavy maple frames; 22-in. surface-planer, 45 ft. turned 2 in. shaft, hangers, pulleys, and belts, complete, cost $850 00. All in good order, and been used but little. Will take $450.00 (engine cost $100 00) to make quick sale, as our truck farm takes all our time. Write for full particulars. F. & H. P. Langdon,
Maple Ridge Farm, Constable, N. Y.

PAGE & LYON,
New London, Wisconsin.

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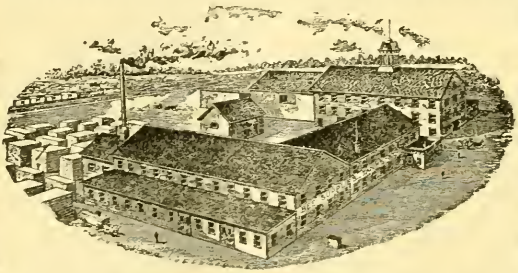
**Shipping-point and Money-order
Office at Wetumpka, Alabama.**



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Box 60, Red Oak, Iowa.

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Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

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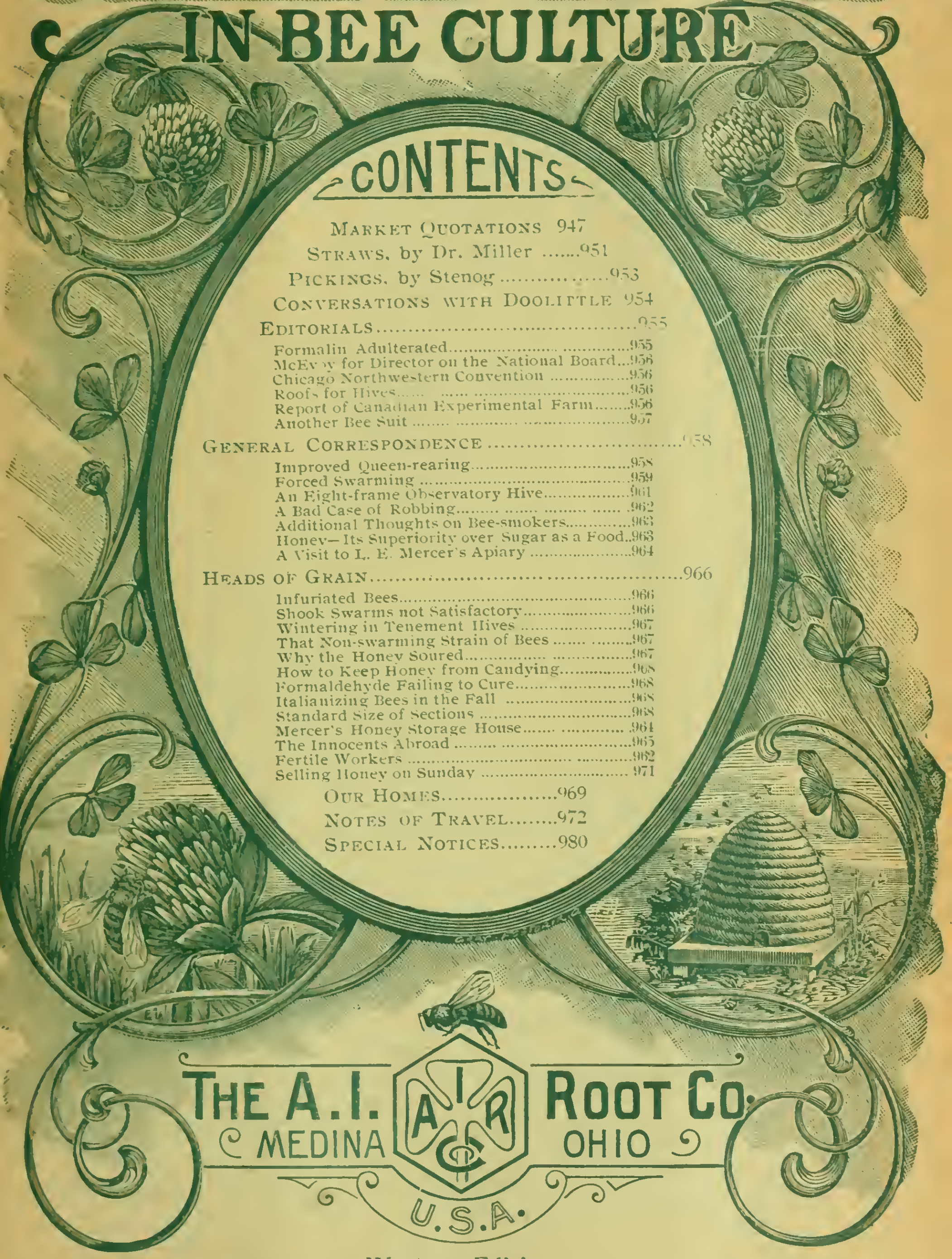
why not compliment the inventor of your best tools with your order? He will prize it now more than a monument after he is dead. A clean smoker is what bee-keepers never had. It can be had only of Bingham. Three-inch, $1.10; 3½-in., $1.20; 4-in., $1.60. W. G. Secor, Greenfield, Ill., writes: "It is just lovely—perfection itself."

—o—

**T. F. BINGHAM,
FARWELL, MICH.**

Volume XXXI NOVEMBER 15 1903 Number 22

GLEANINGS IN BEE CULTURE



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are headquarters for the State, and furnish local associations who can use as much as a carload at carload prices direct from the factory, or smaller lots from our well-furnished warerooms in Denver, at prices that defy competition for equal quality of goods. We are agents for THE A. I. ROOT COMPANY'S GOODS for Colorado, and want to hear from bee-keepers in need of supplies. We buy honey and wax.

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I have a few set-up hives left, that were in the Kansas City flood, that I will sell cheap; they are as good as new at bargain prices; also, some other slightly damaged goods to sell cheap. I have anything you want, and I expect a new car of goods every day. Order early and secure my early-order discount. .˙ .˙ .˙ .˙

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CARL F. BUCK,
Augusta, Butler Co., Kans.

Announcement!

We desire to call the attention of all bee-keepers in Washington, British Columbia, and adjacent territory, that we're now the Northwestern agents for

THE A. I. ROOT COMPANY,

and are prepared to furnish from stock here, and at other Washington points, any thing required by bee-keepers. Send your specifications early. If we do not have the goods wanted this will enable us to get them in our next carload. Catalogs free.

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Northern-grown Seeds, Trees and Plants, Poultry and Bee Supplies, Spray Pumps, Fertilizers and Garden-tools.

GLEANINGS CLUBBING OFFERS

In order that our subscribers may have the benefit of the very latest and best combinations in periodicals and also the lowest possible subscription rates on all their reading matter, we have arranged with one of the largest subscription agencies to handle our entire clubbing and general subscription business. All orders and all requests for prices should be addressed to **C. M. Goodspeed, Skaneateles. N. Y.** Some of our many offers may be made from the following lists. Catalog for 1904 will be ready about Thanksgiving.

"Class A."

Success,
Cosmopolitan,
Pearson's,
Leslie's Monthly,
Woman's Home Companion,
Good Housekeeping.

"Class B."

Cosmopolitan,
American Boy,
American Mother,
Book-Keeper,
Cincinnati Enquirer,
Campell's Illustrated Journal,
Chicago Inter-Ocean,
Farm Poultry,
Good Health,
Hints,
Home Science,
Health Culture,
Michigan Farmer,
National Magazine,
Ohio Farmer,
National Stockman,
Pathfinder,
Pilgrim,
Recreation,
Rural Californian,
The Era,
Twentieth Century Home,
Tribune Farmer,
Witness, New York,
Household Ledger.

"Class C."

Country Gentleman,
American Agriculturist,
Tri-Weekly World, N. Y.,
Tri-Weekly Tribune, N. Y.,
Syracuse Post Standard.

"Class D."

Current Literature,
Independent,
Lippincott's,
Review of Reviews,
Outing,
Critic,
Chautauquan,
World To-day,
Week's Progress,
World's Work,
Country Life.

"Class E."

People's Home Journal,
Good Literature,
Kansas City Star.

"Class F."

Latest Literature,
Ladies' World,
Little Boys and Girls,
McCall's Magazine,
World's Events,
Hints,
Sabbath Reading,
Pets and Animals,
Normal Instructor,
Vick's Magazine,
Nickel Magazine,
Green's Fruit-Grower,
Four-Track News,
Farm and Home
Farm and Fireside.

"Class G."

Farm Journal,
American Poultry Advocate,
Metropolitan and R. Home,
Gentlewoman,
Household Guest.

The following short list no agent is allowed to quote in clubs, so please don't ask us to. They are the best of their classes, but must be paid for at the price named.

Delineator	$1.00
McClure's	1.00
Munsey's	1.00
Argosy	1.00
Ladies' Home Journal	1.00
Youth's Companion	1.75
Saturday Evening Post	1.25
Designer	.80
Everybody's	1.00

In Making Up Clubs, Remember

That we accept either new or renewals at the same price, unless expressly stated that they must be new.

Success and any one of class "A"	$1.50
Success and any two of class "A"	2.00
Success and one of class "A" and one of class "D"	3.00
Success and two of class "D"	4.00
Success and two of "A" and two of "D"	5.00

Any periodical in class "B" may be substituted for any one in class "A" in above offers.

Gleanings and any magazine in class "A" for	1.50
Gleanings and any two of class "A" for	2.00
Gleanings and any one of class "B" for	1.25

Any periodical in class "B" may be added to any club by adding 55 cents. For instance: Gleanings and Cosmopolitan would make a Gleanings club at $1.25 and you could add your choice of any magazine or magazines in class "B" by adding to the $1.25 offer, 55 cents for each one you wish to add.

Gleanings and any one of class "C"	$1.50

Any periodical in class "C" many be added to any offer by adding 90 cents.

Gleanings and any periodical in class "D" for	$2.75
Gleanings, Success and one of class "D," all for	3.00
Gleanings and any one of class "F" for	1.00
Gleanings and any two of class "F" for	1.25

Any periodical in class "F" may be added to any offer for 35 cents.

Gleanings and one of class "E" for	1.00
Gleanings and any two of class "G" for	1.00

Any one of class "G" may be added to any offer for 20 cents. Clubs may go to different addresses, if desired. SAMPLE COPIES--We have five tons of nice new magazines and periodicals of all kinds which we will send you postpaid three pounds for 20 cents. Prices quoted on any list submitted.

Address all orders to

C. M. Goodspeed, Box 731, Skaneateles, N. Y.

Combinations.

High-Class Magazines at Nearly Half Usual Cost.

Cosmopolitan, Recreation and Farm Journal, three for	$1.30
Cosmopolitan, Current Literature and McCall's Magazine	2.80
Cosmopolitan, Gleanings and new subscription to Farmers' Call	1.25
Recreation, Pearson's Magazine and Ohio Farmer	1.60
Recreation, Cosmopolitan and Ohio Farmer	1.60
Recreation, Woman's Home Companion and Ohio Farmer	1.60
Woman's Home Companion, Cosmopolitan and Gleanings	2.00
Century and Cosmopolitan	4.00
Century, Recreation and Latest Literature	4 40
Century and World's Work	5.75
Century. Country Life in America. Cosmopolitan and Gleanings	6.75
Scribner's, Cosmopolitan and Housekeeper	3.75
Leslie's Monthly, Gleanings and Recreation	1.90
Leslie's Monthly. Tri-Weekly Tribune and Ladies' World	2.00
Housekeeper. Cosmopolitan and Vick's Magazine	1.00
Twentieth Century Home and Cosmopolitan	1.25
Ladies' Home Journal and Saturday Evening Post	2.25

Farm Papers.

Farmers' Call is a good, first-class weekly farm paper, and we will club new subscriptions as follows:

Farmers' Call, Practical Farmer and Tribune Farmer	$1.00
Farmers' Call, Farm Poultry and National Stockman	1.25
Farmers' Call, Rural New Yorker and Gleanings	1.50
Farmers' Call, Hoard's Dairyman and Tribune Farmer	1.25
Farmers' Call, Green's Fruit-Grower and Tribune Farmer	60
Ohio Farmer, Farmers' Call and Farm and Home	80
Ohio Farmer. Green's Fruit-Grower and Farm and Fireside	80
American Agriculturist and Tribune Farmer	1.25
New England Farmer and Tribune Farmer	1.25
Orange Judd Farmer and Tribune Farmer	1.25

High-Priced Weeklies and Magazines.

Judge and Leslie's Weekly, to one address,	$5.25
Collier's Weekly and World's Work	6.25
Harper's Weekly and Harper's Monthly	6.60
Century, Harper's and Cosmopolitan	7.25
Century and Atlantic Monthly	6.75
Scribner's and World's Work	5.00
Scribner's and Country Life in America	5.00

Domestic and Miscellaneous.

Housekeeper and Table Talk	$1.15
Woman's Home Companion, McCall's Magazine and Era	1.55
McCall's Magazine, Ladies' World and Latest Literature	1.00
McCall's Magazine, Household Ledger and Cosmopolitan	1.50
McCall's Magazine and Twentieth Century Home	1.00
McCall's Magazine, American Boy and Tribune Farmer	1.25
Little Boys and Girls, American Mother and Health Culture	1.50
Little Boys and Girls, Housekeeper and Farm and Home	1.00
Tri-Weekly Tribune, Practical Farmer and Cosmopolitan	2.00
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Tri-Weekly World, Cosmopolitan and Tribune Farmer	1.75
Etude and Cosmopolitan	1.75

$100.00 in Cash Prizes for Subscriptions to Ladies' Home Journal and Saturday Evening Post.

We meet the prices of any agent, publisher, or agency. Local checks accepted at their face; money orders preferred. Careful estimates made on large orders, or periodicals not listed here: McClure's Magazine Youth's Companion, Argosy, Everybody's Magazine, Ladies' Home Journal, Saturday Evening Post, Munsey, and Christian Herald Publishers of the above list know their periodicals to be the best and will not allow any agent to cut their price to the subscriber, or club with other magazines. We are able to give an agent a liberal commission (see catalog) on any of these except renewals to Youth's Companion. Address all orders to

C. M. Goodspeed, Box 731, **Skaneateles, N. Y.**

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark, that is, there will be "Fancy White," "No. 1 Dark," etc.

CHICAGO.—The supply of comb honey is large, and sales are being forced, so that it is a little difficult to give accurate figures. Sales are not easily made of fancy at any thing over 13, with less desirable grades selling lower. Extracted white brings 6@7½, according to kind, flavor, and package: amber, 5½@6½. Beeswax, 28@30. R A. BURNETT & Co.,
Nov. 9. 199 South Water St, Chicago, Ill.

CINCINNATI —The demand for honey is a little better. The prices rule about the same. Extracted is sold as follows: Amber in barrels, 5¼@5½; in cans, about one half more; water-white alfalfa, 6@6½; white-clover, 6¾@7½ The comb honey market is quite lively, and sells as follows: Fancy water-white, 14@15. Beeswax in good demand, and I will now pay 30 cts delivered here C. H. W. WEBER,
Nov 7. 2146 Central Ave., Cincinnati, Ohio.

SCHENECTADY.—Receipts of both comb and extracted have been unusually large the past ten days, and buyers have already purchased freely. Stock is accumulating, and prices are not so firm, although we do not change our quotations Fancy white, 16; No. 1, 15; No. 2, 13@14. Buckwheat, 12@13; extracted, light, 6½@7½; dark, 6@6½. CHAS. MCCULLOCH,
Nov. 7. Schenectady, N. Y.

BOSTON.—Owing to the large amount of honey coming in, prices are softening a little. Fancy white we quote at 16@17; A. No. 1, 15½; No. 1, 15. Practically no No. 2 in the market. Extracted, 6 to 8.
BLAKE, SCOTT & LEE,
Nov. 6. Boston, Mass.

TORONTO.—Prices on honey here remain about the same; a little more demand, especially for good comb honey; apparently not a great deal of extracted honey exchanging hands at present. Comb honey in sections, per dozen, $1.40 to $1.75, according to quality. Extracted, best quality of white clover and basswood, 6½@8 c; darker grades and mixed, 5@6, wholesale. Comb honey retails from 15@25c, according to quality. Extracted, best quality in 5 and 10 lb. cans, retails at 9 @ 10c per lb.; darker at 8.
Nov. 11. E. GRAINGER & Co., Toronto, Ont.

BUFFALO.—Pure white comb honey is in very good demand, if put up clean and nice. White-clover honey, with travel-stained frames, or the comb a little yellow, does not sell very well Fancy white comb, 14@15: A No. 1, white comb, 13½@14; No. 1, white comb, 12½@13; No. 2, white comb, 11½@12; No 3, white comb, 11@11½. Buckwheat, white comb, 11@12; white extracted, 6@7; dark extracted, 5½@6. Beeswax, 28@30.
W. C. TOWNSEND.
Oct. 27. Buffalo, N. Y.

MILWAUKEE.—This market has proved very good so far this season for honey, and the sales have been larger than usual up to this date for new crop; but the demand has been more for extracted, and comb has been neglected. But it is confidently expected that, as cool weather prevails, comb honey will take the lead. Prices are steady, although a little more in favor of the buyer as stocks increase. We quote fancy 1-lb. sections 14@15; A No. 1, 1 lb. sections, 13@14; extracted, in barrels or cans, white, 6½@7½: dark amber, 6½@7. Beeswax, 28@30 A. V. BISHOP & Co.,
Oct 28. 110 Buffalo St,, Milwaukee, Wis.

TOLEDO.—The demand for comb honey the past few days has been good, and prices are as follows: Fancy white-clover comb brings, in a retail way, 16; A No. 1 white-clover, 15. No demand for dark. Extracted, in barrels, white-clover, 7½; extracted, in cans, white-clover, 8½; amber, in barrels, 6¾. Beeswax, 26@28.
GRIGGS BROTHERS,
Nov. 7. 214 Jackson Ave., Toledo, O.

PHILADELPHIA.—Honey arriving quite freely. We are now in the height of the honey season, and there is a big demand, but it does not last long. We are getting fancy prices for fancy comb; 17c for fancy white; 15c for No. 1; 13c for amber and buckwheat. Extracted in fair demand: 7c for white; 6 for amber. Beeswax in good demand; 32c for bright yellow. We are producers of honey and do not handle on commission. WM. A. SELSER,
Nov. 11. 10 Vine St., Philadelphia, Pa.

FOR SALE.—5000 lbs. of fine comb and extracted honey, mostly all comb. L. WERNER,
Box 387. Edwardsville, Ill.

FOR SALE.—Three tons comb honey, in 4x5 sections, put up in glass-front cases.
J. I. CHENOWETH, Albia, Iowa.

FOR SALE.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y

FOR SALE.—White clover extracted honey, guaranteed finest quality, at 8⅓ cts., in cases of one 58-lb. can; at 9 cts in cases of 12 5-lb friction top pails, and in cases of 24 2½-lb. friction-top cans. Fall amber honey at 7 cts. in 58-lb. cans Samples, 10 cts. each.
R. & E. C. PORTER, Lewistown, Ill.

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Illustrated Semi-Monthly
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Stray Straws

By Dr. C. C. Miller.

WHAT A WARM FALL we're having! Here it is Nov. 2, and more like summer than fall—bright sunshine, balmy air, and bees flying gayly. [The same here.—ED.]

I ALWAYS THOUGHT A. I. Root was a kind-hearted parent; but it doesn't look altogether like it when he tells us, p. 932, how he coolly abandoned that guileless youth, Huber, just at a most critical time.

OF ALL PLANS offered for automatic hiving, it's just possible that the one suggested by G. W. Strangways, p. 929, is as good as any. Set the hive up where a clipped queen wouldn't easily get back into it, and in a good many cases she and the swarm would find their way into a hive sitting on the ground.

A. I. ROOT may be interested to know that, when at the Kane Co. Sunday-school convention, Oct. 27, 28, I spent the night with his friend, S. W. Pike, the florist, St. Charles, and I concluded there were some nice folks outside the ranks of bee-keepers. But it was hardly the best thing for me; for when I saw the wee plants he was starting from cuttings it made me hanker after the same business.

MR. DOOLITTLE, p. 914, speaks of putting dummies in ten-frame hives when sections are given. It should be added that, if the supers cover the whole of the hive, bees will not do the best work in the sections over the dummies. Possibly this might be obviated by mixing the dummies among the brood-frames. That might seem a bad thing, and possibly it is; and yet after trying it in a few cases I could not see that a dummy in the brood-nest did any harm during the harvest. Of course, it would be a very bad thing at other times.

YE EDITOR says he isn't a candidate for re-election as director, but I tried that sort of thing once and it didn't work—they elected me "allee samee." I suspect it will work the same way now; at any rate, I'll vote for E. R. Root as one of the directors at the coming election, with the expectation that I'll not be alone in my action. Just because a man is big enough to be an editor is no reason he should be too lazy to do his share in other things. [I would not object to the work if I did not think it was about time for some other fellow with more time and ability than I to step into my place. But I am not a candidate, and request my friends to support Mr. William McEvoy.—ED.]

NO, MR. EDITOR, I didn't misunderstand you about the ball of bees found on the ground with a swarming clipped queen, p. 912. Of the hundreds of cases we have had of swarms with clipped queens — perhaps thousands—in not one in twenty did we find the queen with a cluster of her own bees with her. I don't say about other places, but I *know* how it is here. Possibly our hives sitting close to the ground may have something to do with it. Unless we are promptly on hand while the swarm is issuing we may not see the queen at all, for she quickly returns to the hive; and if she doesn't return to the hive, she seems to disappear in some way, rarely being found with an admiring cohort. [You may be nearer right than I; but I distinctly remember that, when I was working among the bees, the first thing I looked for when hunting for a clipped queen was a ball of bees. Your hives are arranged in pairs. If a clipped queen does not go back into one, she may into another, whether she belongs there or not; and I suspect that, in the generality of cases, with your conditions, she goes into one or the other before you happen around.—ED.]

"WHILE IT WOULD be too much to claim that this kind of hay can not be grown without bees, yet it is safe to say that a much poorer crop would be the result without them." So ye editor, p. 917. Now, those anti-bee fellows will make capital of that, and say you are claiming that bees aid the growth of the green leaves. Of course, you mean that a crop of *seed* can not be grown so well without bees, and thus the hay crop will be indirectly injured; but the presence or absence of bees can have nothing whatever to do with the growth of the hay itself. [Technically speaking, your point is well taken; but in the aggregate, taking one season with another, my statement is correct. Without good seed—seed that will germinate—the plants will be scattered here and there, a good many missing, and the field will be correspondingly poor for many years to come, or so long as the old roots are allowed to grow hay.—ED.]

"AUTOMATIC SELF-HIVING" is a heading, presumably the editor's, p. 929. Now, Mr. Editor, please tell us what kind of self-hiving you could have that wasn't automatic, or what kind of automatic hiving you could have that wasn't self-hiving. Next time you overload an item with that kind of a heading, please cross out part of it in the copy mailed to me. I wouldn't have said any thing about it if you hadn't stabbed me in my "eagle eye," page 927. [Yes, surely that was a slip. Self-hiving and automatic hiving mean the same thing, and are, therefore, an unnecessary repetition of words. Oh how I wish that you were editor of a bee-paper! Was it not Job who said, "Oh that mine adversary had written a book!"? Some day, when I am laid up, and get so old I can not do any more journal work, I will call on a young friend like you to take my place, and then won't I "rub it in"? Our proof-reader, however, says he is very sure I wrote it "automatic *or* self-hiving." He is the stenographer who took down my dictation, and ought to know. We both of us in the proof-reading missed the error. But, say; once in a while we catch a slip in your copy, and fix it.—ED.]

QUOTATIONS of the Chicago market, page 907, show that a case of sections weighing 16 oz. each will bring no more than a case of those weighing 15 oz. each, if as much. It is hardly possible that a consumer would prefer a 15-oz. section to one weighing 16 oz. Isn't there something a little rotten about the Chicago grocery trade? [Not if the public has lost or is losing sight of an even pound package. I have contended for some time that consumers, when they pay 15 or 16 cents, pay that amount for a *cake* or *box* of honey, and not for a *pound* of it—nothing rotten, nothing wrong about this whole business if this is the case. Then how much more convenient for the retailer to sell a cake of honey for an even figure at even change without weighing and figuring up the price! If 15 ounces of honey are *worth* 18 cents (whatever the retail price may be), what is the harm of selling it for 18 cents? The scheme of selling honey by the piece is coming more and more into vogue. There is no more objection to selling honey that way than to sell eggs by the dozen. Leghorn eggs will bring just as much in the market as any of the larger eggs of Asiatic fowls; and as long as *they* are not rotten there is nothing rotten in the transaction. Well-graded honey averages about the same weight per box in a case. We will say one box weighs 14, one 14½, and another one 15 ounces. The customer can have his choice out of any of the boxes if there is a choice; but as a rule he will take whatever is given him, without any questions. Here is some poor dark honey. It brings a less price per box; but it will all average up about the same. Is there any thing rotten in that kind of business? To my way of thinking, there is not. You possibly assume that the growing tendency for selling honey by the piece is based on deception to the consumer—making him think he is getting 16 ounces when he is getting only 15 for his money. In this I think you are wrong. The practice has come about because of closer grading and the *convenience* of the system—no waiting; no weighing; no figuring, and no mistakes. Why, don't you know that now there is less and less of buying of groceries by weight? Neat pretty packages of food stuffs already put up, ready to hand out to the customer without wrapping, are becoming more and more popular. If you buy a package of Pettijohn's or of Force you don't know the weight, and don't ask. If you are charged too much, a competing manufacturer will cut the price. Well, why shouldn't comb honey follow the general trend of custom?—ED.]

YE EDITOR, p. 927, thinks he has the joke on me because my "eagle eye" didn't discover his slip in arithmetic. Must have been that I shut my "eagle eye" and looked at his "sum" with the other eye. Now that I've got both eyes upon it, Mr. Editor, I must say that both you and Mr. Clarke are a little off when you say that a bee-keeper whose honey nets him 10 cents a pound loses money if he doesn't get 10 cents a pound for sections that cost him more than that. Why don't you say that he loses money if he doesn't get back any thing for the can in which he ships extracted honey? [But Mr. Clarke and I were talking about the question *whether* sections at $10 a thousand could be sold, when honey nets 10 cts. per lb., so that the purchaser of the sections in selling to the purchaser of the honey would lose no money on the sections when they were sold again. I originally advanced the proposition that one *could* pay even as high as $10 a thousand for his sections; and at a net price of 10 cts. for honey *and* the section, he would get back his money on the section. In this I was mistaken. But it is true, as you partly suggest, that a bee-beeper could afford to pay $10 a thousand for his sections, and he would be paying no more for his package, if as much, as the extracted-honey man who puts up his honey in glass and tin for retail purposes. If we look at the problem from this point of view, he could afford to pay $10 a thousand if the extracted-honey man can afford to buy small glass packages, and give them away to those who buy his honey. The comb-honey producer can not weigh in his shipping-cases with his honey at so much per pound. No, he must pay out good money for them, and then *give them away* if he ships out of town. But his sections he sells again by weight at the price he gets for his honey; and when he pays at the rate of $5.00 per thousand for them he is pretty sure of getting that $5.00 back again. But, fortunately, the large producer does not yet have to pay this figure. He can buy for less, and make a little profit in the wood of the section when he sells.—Ed.]

"There is no advantage in opening a hive oftener than two or three times a season if you desire to get honey," p. 931. Well, yes—er—that is, if you're following a plan that doesn't require opening a hive oftener than two or three times a season. I've just been looking at my book to see how often were opened the five hives from which the largest harvests came. I don't dare tell how often it was, but it was more than two or three times, and I desired to get honey, too, and wasn't opening them just for the fun of it. [This is a question that hinges very largely on management, the man, and the season. You will remember the *Review* for March mentioned Mr. E. D. Townsend. of Michigan, who has for years secured good crops of honey from an outyard by visiting the bees only four times in a whole year. And was it not Mr. Hutchinson, Mr. Heddon, Mr. Coggshall, and several others who made the statement that too much opening of the brood-nest is a waste of labor? At our outyards there are some comb-honey hives that are opened only two or three times a season. When I say the *season*, I mean from spring to fall. But you had a remarkably large yield of honey this last season, and I should imagine it would pay you well to open some colonies oftener than three or four times; and when I say *opening* I do not mean putting on supers and taking off honey.—Ed.]

Pickings from Our Neighbor's Fields By "Stenog."

Our Spanish exchange, *El Colmenero Espanol.* is publishing a series of accounts of the present condition of apiculture in the principal nations of the world. In our next issue it is my intention to give a translation of these, as it is the best birdseye view of the situation I have yet seen; and it shows no little labor on the part of the writer to collect so much information in a small compass.

* * *

Dr. Miller writes concerning what I said about the pronunciation of the word *propolis*, saying that good authority authorizes *prop*-olis as well as *pro*-polis. That's true; but as the greater part of our authorities seem to favor *pro*-polis rather than *prop*-olis, we have always used the former way here. The English writer quoted says it would be a pity to lose sight of the original meaning of the word—*pro*, in front of, and *polis*, a city, by calling it any thing but *pro*-polis. The matter is comparatively unimportant, but I add this explanation simply to *prop* up my *pro*. Dr. Miller is always a safe guide, and I thank him for his suggestions.

* * *

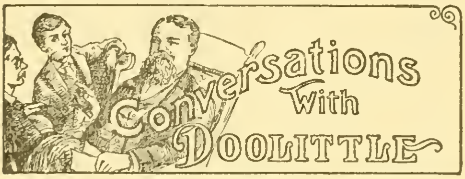
The sight of any thing from Ireland always arouses my interest, especially if it is something new. Well, the newest thing I have seen from there lately is a new bee-journal, *Bee-keeper of Ireland*. The pages are the same size as this, 16 in number, and well filled with matter of a very interesting nature. We have here only the July number, which was the second one issued. I don't see how an American can fail to be interested in the following, as it gives in fine form an Irishman's idea of his own country as well as of this:

> If Ireland does not "buck up" in the bee business before long, some American will come over and "exploit" the Emerald Isle in the production of honey and beeswax. It is absolutely disgraceful that in a country so near London, the principal market of the world, in a country with a flora probably unequaled in the temperate zones, there are not three apiaries of over 100 hives, and that Ireland markets a miserable 100,000 lbs. of honey per annum. The poverty stricken inhabitants eat the other 600,000 lbs. produced. If there be not soon a rustle among the dry bones. the aforesaid American. when he comes, will make his "pile." He will turn out from each of his "stations" nearly as much honey as is now obtained from the whole country. Ireland is without question. able to support 200 000 stocks capable of yielding 200 lbs. each, or 40,000 000 lbs., and until it turns out that quantity the business will not be attended to properly. At 6*d.* per lb. (the price of sections in America. with its hundreds of tons of production has never fallen so low as sixpence. but take it at that) there is nectar worth a million of money going to waste. The peddling arrangement of keeping a hive or two must give the palm to commercial apiaries of 100 or 200 hives at regular intervals all over the country. Those who are first in the field will get the market connection, which is always a valuable asset.
>
> There is no finer honey in the world than is produced in Ireland. The writer, as judge at the Royal Dublin Society's and other shows, has frequently found almost every specimen exhibited to be entitled to full marks, and has been compelled to apply tests not contemplated by ordinary judging standards to secure differentiation.
>
> On consideration, the above remark about "some American" must be withdrawn. It is not one American we shall have. They will come in shoals. A million of money will stand a great deal of carving, and many an American will be content with a fraction of the amount. Ireland is the most paradoxical country on the surface of the globe. In one part of Dublin one must speak German to be understood; in another, Italian; and in another, the language of the Baillie Nicol Jarvie; yet. as regularly as the spring returns, thousands of natives go to America, where they earn three times as much money doing ten times as much work. We say to these emigrants—stay at home and keep bees.

AMERICAN BEE-KEEPER.

A writer maintains that the rise of two opposing factions in an organization like the National tends to a greater degree of strength and purity, just as in national politics we have a higher degree of purity by having two political parties, one to look after the other. Mr. Hill shows up this fallacy as follows:

> With all due respect to Mr. H., we desire to emphasize the assertion that, in regard to his observations relative to the opposing factions which were formerly at work in the National, he is off his base. Legitimate competition of independent and well-organized institutions, whether for industrial, commercial, or political purposes, is one thing; but internal ruptions, breeding discord and strife, curtail its influence for good.



UNIFORMITY IN HIVES, ETC.

"Mr. Doolittle?"

"Yes. That's my name."

"I want to talk with you a little while on several matters. Have you time to do this now?"

"I am a little busy this morning, but that will not hinder, as I am always busy. What is it you wish to know, Mr. Jones?"

"I am about to make some new hives. Is there any advantage in both upper and lower story being just alike, so they can be used together or separately?"

"There are many advantages in having all hives in use of the same size, and several in having both stories just alike. Some of them are as follows: In making you can do the same much faster, and with less bother; you can use the upper story for the same purpose you do the lower, at any time you desire, which will be very often, I assure you; and then, one, two, three, or more will fit together like clockwork in tiering up, without any outside shell whatever to cover them."

"Yes, I see. But what about the entrance? How can that be arranged?"

"By making the entrance in the bottom-board, where it should always be. Thus, this part need not affect the hive at all. If made there, you will never have any bother from this entrance when changing hives, reversing them, changing the front for the rear, or any such thing; and I am sure, after once having hives without any entrance cut in them, you will never go back to the old plan of entrances in the hive again."

"That seems quite simple now you mention it; but I had not thought but that I was obliged to have the entrance cut in the hives as did our fathers. But we must not tarry too long on any one thing lest I weary you with the many questions I wish to ask on different subjects. I must have frames for my hives. Would you advise me to buy wired frames by the hundred, filled with foundation?"

"That depends upon conditions."

"What are those conditions?"

"If you expect to work your apiary for extracted honey it might be the better plan; and even if you work it for comb honey, and have not the time to look after the combs properly, while they are being built, or if your time is very valuable, it may be the better way to buy as you suggest."

"What are the conditions under which you would not think it advisable to buy?"

"With the average bee-keeper, who has some time at his or her command, I think it will pay fully as well, especially where the sections are filled with thin foundation, to use only starters of comb or comb foundation in the brood-frames, say from ¾ inch to an inch wide, as it will to fill the frames full of the same, to say nothing about the saving of money and time. It is the opinion of several of the best bee-keepers of to-day, that as much or more comb honey can be secured by allowing the bees to build their comb in the brood-frames, using starters as I have spoken of, than by any other mode of procedure."

"I suppose this would give me nice comb honey too?"

"Certainly. Comb honey of the most fancy make can be produced in this way, and the difference in selling price between this and that built by a colony having old black comb below, where much of the old wax is worked into the capping of the section honey, is an item worth looking after. But, so far as I can see, just as nice honey comes from a colony having frames filled with foundation as does from frames having only starters, so this fancy section honey has no claims against frames filled with foundation."

"I thank you for this explanation. Now I should like your experience regarding the wintering qualities of the Italian bee as compared with the German. Can the former stand the cold winters we have in 43° north latitude as well as the latter?"

"It is said by some that they do not; and I used to believe that the black or German bee was the hardier; but that was before I made any careful test in the matter. Some 25 years ago I began to look carefully into the matter of wintering; and during the experience of all these years since, I have become convinced that there is little if any difference in favor of either along this line. Some winters the blacks seem to do the better; in others, the Italians come out ahead."

"Now I wish to thank you again, and will come to the main item which brought me over to see you A neighbor has given me some bees in box hives, because he thinks they have not stores enough to winter on. How can I feed these bees?"

"This could have been very easily done a month ago, and perhaps now, should there come a warm spell, or our usual 'Indian summer,' by boring a hole in the top of the hive, if there is none already there, and placing a feeder on top, covering all with a hood, box, half-bushel, or something of that kind.''

"What shall I use for this feeder? I have none.''

"If you do not have a feeder, a suitable-sized tin basin or pan will answer every purpose for such feeding. After having the feed in the pan, pull up some rather short grass and scatter it over the top of the feed for a float, to keep the bees from drowning, and set up a piece of section material in such a way that the bees can climb on it over to the feed. Above all, be sure that all cracks under and about your cover are bee-tight, otherwise you may have a bad time with robber bees, especially should it come off quite warm.''

"Can I not put off feeding till winter just us well?''

"No!—thousand times *no!* It has been put off already too long. Allow me to impress on your mind, so it will always stay there, that from September 20 to October 5 is quite late enough to feed bees.''

"But suppose there come no warm days — what then?''

"If this should happen, and you find the bees are nearly or quite destitute of food when winter sets in, take the box hives to the cellar, turn them bottom side up, and every three or four days sprinkle a few tablespoonfuls of honey over the bees and combs, having the honey a little more than blood warm.''

"Will the size of the colony make any difference?''

"Yes. If any are large colonies, or any seem to require more, use as much as half a teacupful each time, but do not use so much that they will not take it all, as that which runs down in the hive and stays there will sour, and cause the bees not to winter so well.''

"What will be the chances if I can not feed them this fall?''

"Bees have been successfully wintered by feeding them while in the cellar in the way I have told you; but the chances are that a loss of feed and bees will be the result. Still, if I were in your place I would try it if no warm spell occurs, as you will gain in experience, even if you lose the bees.''

"Would it do to leave them till winter, and then set them in a warm room under netting, to feed?''

"I should prefer not to try it, though you might one or two, if you wished to. From my experience in the past, such a procedure would cause them to become uneasy and to go to breeding, thus consuming large quantities of food, which would in all probability cause diarrhea, resulting in death. There is a chance for such occurring where fed in the cellar, but not as much as in a warm room.''

"Well, I must go now. Good day.''

Editorial
By E.R. Root.

Do not fail to read Dr. Kellogg's article in this issue.

THE last issue of the *Bee-keepers' Review* is quite a California number. I have enjoyed reading the editor's impressions of that beautiful country. It is fair, conservative, and truthful. In reading it over I kept saying to myself, "Yes, that is so;'' and, strangely enough, I had never taken the pains to tell our own readers, just because I did not think of it. Well, if you want to know about California send to W. Z. Hutchinson, Flint, Mich., for his October number.

DR. J. H. KELLOGG, whose article we take particular pleasure in publishing, says, "Honey is practically cane sugar already digested.'' When Prof. A. J. Cook made a similar assertion some twenty years ago he was almost persecuted — called a heretic, and was denounced in no mild terms. "Digested nectar,'' said his opponents, "is unscientific, and unsavory in sound;'' but since the years have flown by, there is more and more evidence to show that honey is indeed "digested nectar,'' or sweet already digested, and hence is more readily assimilated than the cane sugars of commerce.

Dr. Kellogg, of the great Battle Creek Sanitarium, is one of the highest medical authorities in the world, and this statement bears with it great weight. If I mistake not, our physicians all over the country admit that honey is one of the most wholesome sweets that one can eat; and some family physicians have recommended honey in preference to cane sugar for their dyspeptic patients.

FORMALIN ADULTERATED; WHY IT HAS POSSIBLY FAILED.

A LETTER from Prof. F. C. Harrison, of the Ottawa Experiment Station, the one who first brought to the notice of the bee-keeping world the use of formalin gas for the treatment of foul-broody combs and colonies, appears in the September issue of the *Canadian Bee Journal*, in which he says that formalin is a very much adulterated article; that a good deal of the commercial stuff put out for formalin is very weak, and would prove entirely inadequate for disinfecting badly diseased combs if used no stronger than the directions call for when the pure article is used.

This, I have no doubt, will be news to many of our subscribers, and it may account for the partial and complete failures with this new treatment. If so, we shall have to go a little slow about condemning the new drug, even if we do not put complete confidence in it for the treatment of our diseased combs.

Prof. Harrison says further that even the adulterated drug may be made to answer provided there is a half more of it used. The extra amount necessary will depend, of course, on the degree of adulteration.

WM. M'EVOY FOR DIRECTOR ON THE NATIONAL BOARD.

THE following announcement from Mr. N. E. France will explain itself:

> As it will soon be time for National members to vote for officers, and amendments to the constitution, I wish to say to the members that Canada has 60 members, and many more readv to join at their next annual meeting. They have no member on the Board of Directors but should have. Mr E. R. Root not being a candidate for re-election, I shall vote for William McEvoy to succeed him. He has done more for Canada than any other member, and this season he settled several cases for us. N. E. FRANCE.

COPY OF POSTAL BALLOT.

MR. G. W. YORK, Chicago:
I hereby cast my vote as follows :
For General Manager..............................
(To succeed N. E. France, of Platteville, Wis.)
For Director.......................................
(To succeed R. C. Aikin, of Loveland, Col.)
For Director.......................................
(To succeed P. H. Elwood, of Starkville, N. Y.)
For Director.......................................
(To succeed E. R. Root, of Medina, O.)
(Mr. Root is not a candidate for re-election.)
...........Amendments to the Constitution
(for or against). (Name and Address.)

All votes must be in before January 1, 1904.

I shall be very glad to see Mr. McEvoy elected in my place, as I can not serve, even if elected. He is a very hard worker, and is greatly interested in every thing that pertains to the best interests of beedom. He will be a most excellent man on the Board, and I shall be sincerely gratified if he is elected.

JOINT CONVENTION OF THE OHIO STATE AND HAMILTON CO. BEE-KEEPERS' ASS'N.

THE following will be of interest to Ohio bee-keepers:

> Last evening we completed arrangements for our meeting on Nov. 25. There will be a business meeting for the joint associations at 2:30 P. M., in the Grand Hotel, and at 7:30 the stereopticon exhibition by Mr. Root will take place. At this meeting we have the promise of attendance of our new representatives, some of whom are bee-keepers. We are sending a circular to every bee-keeper in Hamilton Co., and adjoining counties in Indiana and Kentucky, stating our objects, and requesting their attendance. Some 500 complimentary tickets of admission were inclosed with the circular to make the invitation emphatic and secure a good attendance of bee-keepers, and their families and lady friends. We sent an invitation to N. E. France, and trust he will be with us. W. J. GILLILAND, Sec'y.
>
> Silverton, Ohio, Nov. 10.

CHICAGO-NORTHWESTERN CONVENTION.

THIS will be held in Chicago, Dec. 2 and 3. This is one of the big conventions, and comes the nearest to those of the National of any other held during the year. The following is the announcement put out by the secretary:

> The regular annual meeting of the Chicago-Northwestern Bee-keepers' Association will be held in the Revere House club-room, southeast corner of North Clark and Michigan Streets, Dec. 2 and 3. The Revere House has made a rate of 75 cts. per person per night for lodging, when two occupy a room. Meals 35 cents, or on the American plan at $2 per day. Owing to the Revere House furnishing free a place for holding our meeting, we feel that all who can do so should patronize them during the convention. Dr. C. C. Miller, W. Z. Hutchinson, E. T. Abbott, N. E. France, J. Q. Smith, J. A. Stone, and Huber H. Root have signified their intention to be present. This will be one of the best conventions ever held in Chicago. It has been suggested that bee-keepers bring with them samples of honey, and such little appliances as they have that are considered handy to work with in the apiary.
>
> G. W. YORK, Pres. H. F. MOORE, Sec.

ROOFS FOR HIVES; STEEL ROOFS SHORT-LIVED.

IT is a very difficult matter now to get the old-fashioned iron in roofing-tin, the same as we used to get years ago. Iron made by the old process would last many years longer for roofing than the present steel made by the new process. Indeed, builders and contractors have come to recognize the fact that the new steel roofings, unless galvanized, are very short-lived. The modern method of making the steel seems to take out some elements that protect it from rust. One would naturally suppose that painting this steel, and keeping it painted, would protect it thoroughly, but such is not the case. Some of the modern steel roofs that we put on our buildings rust right under a good coat of paint.

An old contractor said to me the other day that he would never again recommend to his patrons steel roofing, as the asbestos, magnesia, fabric, or gravel-and-tar roofings were far more durable.

And this brings me to the question of tin roofs for hives. Unless the new modern steel is galvanized, it probably will not last as long as ordinary cheap paper; and an intending purchaser had better make his selection from covers made entirely of wood or wood covered with paper, cloth soaked in white lead, or galvanized steel. Do not use tin, if you do not wish to have your roofs rust in a short time.

A very good substitute for tin is muslin soaked in white lead. I saw some excellent covers protected with this material, in Colorado, that had been in use several years, and were good then. The cloth will take up the oil; and if it is painted occasionally it probably will outlast tin a good many times over; and, what is of considerable importance, it is much cheaper.

APICULTURAL REPORT OF THE CENTRAL EXPERIMENTAL FARM, OTTAWA, CAN.; SIZE OF HIVES; SAINFOIN AS A HONEY-PLANT; DO BEES INJURE ORCHARD FRUITS?

WE have before us the apicultural report given by Mr. John Fixter, foreman of the Central Experimental Farm, Canada, at a meeting held in the House of Commons, June 26, 1903. The report details at length various experiments made on the farm. These appear to have been conducted from a strictly practical standpoint; and the end aimed at was, plainly, that of devising methods, and deducing from actual tests conclusions that would be of the greatest import to the average bee-man.

· Mr. Fixter gives statistics to show the results of experiments with different sizes of the Heddon and Langstroth hives. The figures given tend to prove that the latter are preferable; and of these the ten-frame size, he says, will be better for the farmer, with whom bee-keeping is but a side issue, and who has only a limited amount of time to devote to it; and the eight-frame size more serviceable in the hands of the competent. Eight colonies were used in making the experiment; and of these, four were in Heddon and four in Langstroth hives.

A report was also given of some experiments made in order to ascertain the best kind of clover for the farmer apiarist to sow — one that would be equally good as fodder, fertilizer, and honey-producer. The one recommended is a species known as *sainfoin*. Says Mr. Fixter: "It has been generally thought that the little white clover or alsike produced more honey; but I have found that the sainfoin clover gives, I am safe in saying, a greater amount of honey than the white clover will; and it gives also a good amount of fodder per acre. This plant . . . never gets too woody to be used as fodder. . . When we can get farmers to sow sainfoin as fodder, bee-keeping will have a boom, and will be far more successful."

Some interesting notes were given of the relative amount of water in ripe and unripe honey. Investigation showed that the unsealed contained from 4 to 5 per cent more water than that which was sealed. It was proved, also, that honey kept in a damp cellar absorbs moisture, and ferments. Mr. Fixter was strong in his protest against bee-keepers putting unripe honey upon the market, and rightly declared that it was just as injurious to the honey-trade to do so as it would be to the fruit-trade if fruit-growers were to offer immature fruit to the public.

Perhaps the experiment that will be of most interest to our readers is one made to determine whether bees injure our orchard fruits. The test was made with peaches, pears, plums, grapes, strawberries, and raspberries. The question of "bees and fruit" has been a vexed one for years, as we all know; and a certain class of fruit-growers has been persistent in its denunciations against the honey-bee. The results of Mr. Fixter's experiments have been, like those of all others, fairly made; namely, that bees can not and do not injure good sound fruit, but simply take the juices from those already punctured.

For the observations along this line, four colonies of equal strength were taken; and on each was put a super divided into three compartments. In one of these compartments was put sound fruit; in another one, punctured fruit; and in the third, sound fruit besmeared with honey. The bees began at once to work on the honeyed and punctured specimens, and apparently both were going to be demolished. At the end of six days the hives were examined, and it was found that the punctured specimens were destroyed; those dipped in honey were thoroughly cleaned but uninjured; and those not treated were in sound condition. Fruit dealt with in a similar way was also hung about the apiary; but in every instance the bees were unable to feed on them. More weight is added to the results of these experiments from the fact that they were made during the summer when no honey was coming in from natural sources. Some of the colonies were even depleted of their stores in order to make the tests thorough; but many of the bees died of actual starvation while luscious fruit lay appetizingly around. That thin covering provided by nature formed an impenetrable barrier between them and the coveted sweetness—"so near and yet so far."

House apiaries were recommended for those living in cities or other places where a good plot of ground could not be obtained. The colonies kept in the same were said to do better during severe weather than those in the yard, as they were greatly protected from the inclemency.

ANOTHER BEE-SUIT; NEGLIGENCE OF BEE-KEEPERS.

SOMEWHAT over a year ago a valuable pair of mules were stung near Millsboro, Delaware, so seriously that they died. The bees that did the stinging were inside the village and the mules were driven along the common highway within a comparatively few feet of the bees. The owner of the mules has sued the bee-keeper for $500.00 damages, alleging that their owner had no right to keep them so near the common highway. A lawyer has been working up evidence, and it is possible there will be some interesting developments later. A bee-keeper (not the one whose bees did the damage) who has written us in regard to the matter thinks that his neighbor should pay at least one-half of the loss of the mules.

The lesson in this case is that bees within corporated limits should not be kept up close to the general highway without at least a high board fence, shrubbery, or something that would cause the bees to fly high in the air. Our bees are located within 100 feet of the highway but a row of thickly matted evergreens with an average height of 50 ft. causes the bees to fly high as they pass over the road before they can get to their hives. The result has been that we have never had any trouble with the bees attacking horses along the way. But whether the bee-keeper in question were a member or not, it is my impression that, when he himself is negligent, either from letting the bees get to robbing or because he has had them too close to the highway and has failed in some way to raise the flight of his bees above the common highway, the Association would advise him to settle on the best terms possible. Where the bee-keeper is *plainly negligent*, the Association, as I understand it, does not attempt to defend him.

GENERAL
CORRESPONDENCE.

"IMPROVED QUEEN-REARING."

A Review of Mr. Alley's New Bee-book.

BY GEO. W. PHILLIPS.

In reviewing Mr. Alley's latest book, entitled "Improved Queen-rearing," I can do so only from my own standpoint — a standpoint taken by many bee-keepers besides myself. True criticism is as catholic in rejecting as in accepting. I hardly think it necessary, therefore, to make any excuse for conflicting with his views in a few particulars.

Various have been the methods of queen-rearing set forth from time to time, and their several promulgators have clung to them with tenacity (sometimes a tenacity born of despair), through thick and thin. The present-day bee-keeper comes upon the stage of action at a time when all these various methods are in vogue; and the task that confronts him is to set himself to work, and, from this confusion of systems, evolve one that will be practical in his hands.

We have not tried them *all*, but most of them have come under our notice, and among the rest the Alley system. So far as the *quality* of queens reared is concerned, we have no complaint to make. As good queens may be reared by the Alley system as by any other, provided the essential conditions exist in the cell-building colonies, and the line mapped out by Mr. Alley be carefully followed. What we object to is its complexity and its attendant excessive amount of fussy manipulation.

But what is the Alley system? There are three different modifications of the same given in detail in "Improved Queen-rearing." I shall endeavor to set forth briefly in this the one which the author calls his "favorite," and labels in his book "Method No. 1." It is as follows:

"Seize" a colony of bees in such a manner that not a bee can escape. Take it to your bee-room, and place it on the cap of a hive; "sit down and commence operations." Thoroughly tobacco-smoke the bees through the wire screen that confines them, drumming the hive in the meanwhile. Next, raise the screen cover and brush them into the aforesaid hive-cap, frame by frame. See that so much tobacco smoke is used that they can not fly. Hunt the queen up and remove her. Precipitate the cluster into one corner of the hive-cap by a sudden jar, and then dump them into another box, the exact size of the one they originally occupied, having on a wire-cloth bottom. Confine them in this again. Nail three pieces of ⅞ stuff across the bottom, to allow a free circulation of air when set down, and put in a cool place for the present. "At this stage of the work we have a colony of queenless bees."

Next prepare your strips of comb, killing every alternate egg by twirling a matchstick in the cell it occupies, and fasten to horizontal bars by means of a preparation of melted rosin and beeswax. Next step, put a prepared frame of eggs into a brood-box, filling the same with combs of pollen and honey — no brood. Next set the brood-box on the floor between yourself and the queenless bees. Give the hive containing the latter a "sudden drop," which again precipitates the bees; and before they "recover from their surprise" remove the cover. Place it on the brood-box, and quickly clap the same over the hive of "surprised" bees. "Now all the labor is done." (We should hope so; but, alas! no.) Leave the bees in the bee-room over night. Place them on their stand in the yard next morning at ten o'clock. Supply them with water during confinement by splashing it through the wire screen on top. Upon releasing, cage a queen at the entrance in order to pacify the bees. At the end of twenty-four hours "another thing must be done;" viz., the embryo cells must be removed and placed on the top of a strong colony for completion. This, in its most condensed form, is the method recommended by Mr. Alley.

It is hard to conceive how a more elaborate and complex system of queen-rearing could be devised. Still, our duty is to find out whether better queens can be reared by it, and, if so, adopt it. Experience, however, goes to prove that this is not the case (and in this the author agrees if we interpret him aright—see page 24, lines 21—25). Queens equal in every respect can be reared by methods that are very much simpler — methods more easily grasped by the beginner, more effective in the hands of the expert, and more profitable when employed by the man who makes a business of raising queens.

I am aware that some of our large queen-breeders use the Alley system, are satisfied with it, and prefer it to any other. This, according to my way of thinking, is attributable to the fact that they learned to use it years ago; and although more direct ways to *the same results* have been discovered, they prefer the old beaten path.

I advise the readers of this article to refer to GLEANINGS for August 15, 1899, and read an article by Mr. Alley, and the editorial footnote by Mr. E. R. Root, in the same. For me to start making contrasts again would be irrelevant.

Mr. Alley also speaks of another modification of his system, which, although not his "favorite," is highly recommended by him. I give the same without comment:

• Proceed as in the manner already described, but, instead of having the cells completed in the upper story of a strong colony, give them to one from which the queen has been removed for about twelve hours. After five days remove them to a queenless colony and reintroduce the queen.

Mr. Alley does not take much stock in queens reared under the supersedure impulse, nor, in fact, in a colony that is queen-right. His views in this respect conflict with those of many queen-breeders, and, incidentally, with the writer's.

Judging from the photo at the beginning of his book, Mr. Alley has now reached the age of the "sear and yellow leaf." He can recollect the time when a halo of mystery surrounded the bee-hive, and the pursuit was shrouded in ignorance and superstition—when each hive was said to have a "king," and bees carried "wax" on their feet. He has seen the time when absconding swarms were called home with the dinner-bell, and when colonies were draped in mourning at their master's death. He has watched the industry in all its stages of growth, and himself played no mean part in contributing to its present development. Mr. Doolittle, I *think*, once said that he looked upon his own book as his offspring—his child; and it is possible that Mr. Alley entertains the same parental feeling toward his queen-rearing system, and well he may; for did it not take the best of his thought to formulate such a plan—a plan which, although objectionable on account of its intricacies, is irreproachable so far as the quality of queens reared by it is concerned?

Mr. Alley, it will be seen, is no amateur. His knowledge of things apicultural is not of mushroom growth, but of that healthy state of development which only years of experience and close application can give. Among the world's bee-keepers he stands forth a veteran of the veterans.

Space forbids my commenting further on this work. "Improved Queen-rearing" is a book of 55 pages, and deals with the subject purported in the title from the time the egg is deposited to the time the queen is fertilized and laying. The author describes the formation of miniature nuclei; different methods of introducing fertile and unfertile queens; the use and abuse of tobacco; shows the picture of a pipe from which the fumes of the "vile stuff" are exhaled instead of inhaled; illustrates queen-cells good and bad, and gives a summary of his complete outfit at the end. We think this work should have a place in the library of every bee-keeper.

Medina, Ohio.

[For some time back I have been trying to find time to read and review Mr. Alley's latest book on improved queen-rearing. As Mr. Alley is one of the veterans, and has spent more than an average lifetime in studying and rearing queens, I felt that this book deserved a careful review. As the time did not come to me, I turned the book over to our head apiarist, Mr. G. W. Phillips—a man who is well versed in bee literature, and who has spent a number of years in rearing queens, not only in Jamaica, but for us here at Medina.—ED.]

FORCED SWARMING.

How to Proceed in Such a Way as to Prevent Subsequent Natural Swarming; why Starters are Preferable to Drawn Combs. A Valuable Article.

BY J. E. CHAMBERS.

I see Mr. W. K. Morrison has sounded his note of warning respecting forced swarms and starters (see GLEANINGS, March 15). I wish to state that Mr. Morrison is altogether wrong about such swarms ever becoming weak. Evidently he has made the sad mistake of supposing that it is useless to make the second drive. In my practice I should never make the first drive if I did not intend to follow it with a second, and that in a short time. The reason is obvious: The honey-flow waits for no man, and the colony must be kept strong. No one should think of increase by this plan; for, while it is possible to make some increase during the time of brushing, there are other and much better ways of doing it.

In this article I wish to give some of the different plans—all modifications of the original methods set forth by Mr. Stachelhausen a good many years ago. I myself have used all of these plans with considerable success. As a matter of fact, depriving a colony of all its brood stops the swarming impulse temporarily at least. I have endeavored to find out which of the combinations would most effectually destroy the desire to work up again to a condition of swarming, and results are given in this article.

In regard to the other statement made, viz., that bees on starters build too much drone comb, I can see how, with a deep hive, such might be possible. My hive is of the six-inch depth, and seven-eighths of the combs built are worker size of cell.

The following is a plan I have practiced for a long time: Place two colonies side by side; give each two shallow hive-bodies for development. A few days before you think they are going to swarm, place a case of sections between the hive-bodies on one of the colonies, and on the other place a shallow hive with large starters. In a few days the latter will have started to draw the foundation. Now place the upper story, with the partly drawn frames of foundation, with all the bees in it, in the middle of the ground occupied by the two colonies; remove the old hives to new locations; put the section-case with its bees on the new hive, and give them either of the queens belonging to the old colonies. It may be necessary under some conditions to give the queen in a cage, though I have never done so. This gives a very powerful force of field bees, and room must be given in proportion.

You can pile the shallow bodies containing the old combs and young bees all together, and have a rousing big colony for extracted honey. For a few days, the greater part of the swarm being old bees, there will be some confusion; therefore it is best to have the pairs of hives not less than seven feet apart.

Another modification of the "shook" or "brushed" swarm is this: Breed the colonies up to the greatest possible strength; Then select ten combs containing the least amount of brood; put them into a hive-body and set it on the old stand; put a section-case with full sheets of foundation on top of this body, and brush most of the bees into it. Uncap several of the combs and allow the bees to gorge themselves on the honey. This starts them to building comb. In eight days remove this section of the brood-chamber and substitute the other section; brush the bees into the last; keep the queen and most of the bees in the working hive; allow the brood to be fed and sealed by nurse bees. This settles swarming. A shallow double-decker is an indispensable requisite to this manipulation.

Another way, and the one I think recommended by Mr. Stachelhausen, is to use full or half sheets of foundation, as considered best, and brush all of the bees, using the combs of brood to build up other colonies or make nuclei. This method was far superior to natural swarming, in that it gave at least 20 per cent more bees, and made less work for the apiarist; but it had one very serious fault: The combs of brood could not be utilized to the greatest advantage, and the force of hatching bees was lost to the colony. Since first Mr. Stachelhausen gave to the public this plan, he has modified it considerably. Though many claim to have arrived at these different plans independently, I believe the credit rightly belongs to him.

I have modified this plan for my own use, and now consider it very satisfactory. I have noticed all that has been said against it, and candidly believe it suited to the careful expert, but not to every careless operator. Either of the other plans is good, and will work with reasonable care. Both can be depended on to get lots of comb honey; but having in mind the matter of soiled and travel-stained sections when producing comb honey over old black combs, I do not use old combs. Half-sheets in the six-inch hive are good enough for me. The amount of drone comb built is insignificant. The second drive gives all the bees I ever need for the flow at home; and after the white-honey flow I can unite again and get a very powerful colony for the slow flow that comes later on. Working thus, I am at all times master of the situation.

I am not in the least dogmatic; but results count, and I get good results every time; so I say, for me at least, the brushing of bees on half-sheets is a decided success.

One thing I wish to mention: Pure Italians do not go into the supers so readily as Carniolans and their crosses; and, of course, such good results can be had only when the bees rush into the supers promptly.

To hive on drawn combs is a very deceptive thing — at least it is so with me. The bees always store some honey (and I doubt if it can be prevented) in the two outside combs. The brood Mr. Morrison is so anxious to get started would be of no value for at least 24 days, and that would mean a big loss to me. Better — far better — the second drive of young bees before the flow is too far gone. In any case I fail to see how the use of drawn combs would increase the amount of honey or decrease the amount of work. As to the other objections, I am sure that you who are careful to have young queens and shallow hives will never be troubled in the least.

In experimenting with the three plans outlined above, I found that, in order to overcome certainly the desire to swarm, it is absolutely necessary to give the bees plenty of work to do something to keep the young bees busy as well as the old ones; and for that purpose nothing equals comb-building. As in the second plan mentioned, compelling the young bees to nurse the brood in a separate hive will answer the same purpose.

Mr. Morrison says he wants big hives, and so do I, but not for a working hive. No man can get the best results in comb honey with big hives and drawn combs to start with. Whatever size of hive is used for a breeding-hive, contraction must be resorted to, or poor results will follow, no matter who says to the contrary. A really fine article of comb honey can not be got over old combs where the bees can find room to store in the brood chamber.

Lastly, does not every bee-keeper know that a powerful colony of bees in a small hive, with a vigorous young queen, and plenty of room above to store in, will build only worker comb in the brood-chamber? It is different with large hives and old played-out queens, however. The chances are that a good amount of drone comb will be built, if very narrow starters are used in deep frames, and there be any crowding in the supers. The bees during a good flow will be largely compelled to build downward; and as storage room is what they are after, drone comb mostly will be built.

I do not consider that Mr. Morrison has made out any good case against half-sheets of foundation in shallow frames. Evidently he uses a frame too deep for the best results, or allows the bees to be too crowded in the supers. At any rate he gets lots of drone comb in his frames and I do not. He gets more honey over drawn combs, but I get fully a third more over starters, and of course mine is whiter. He gets a good lot of brood in his combs that will be workers in about thirty days; but I get by a second drive a wad that are workers right now.

Vigo, Tex.

AN EIGHT-FRAME OBSERVATORY HIVE AT THE MINNESOTA STATE FAIR.

An Interesting as well as Educational Exhibit.

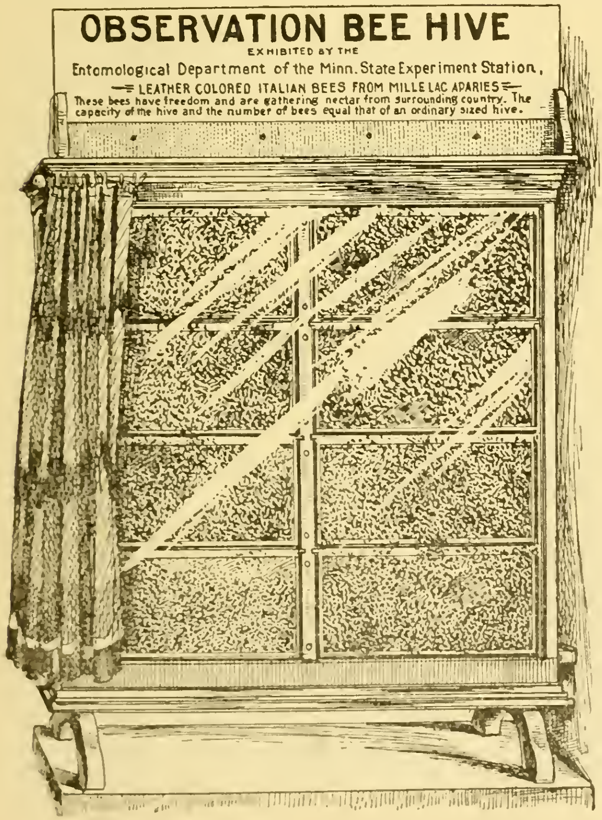
BY PROF. F. L. WASHBURN.

The readers of GLEANINGS may be interested to see the accompanying photograph of an observatory hive recently exhibited by this department at the Minnesota State Fair, and to hear an account of our successful experimenting with the same.

The case is of oak, with plate-glass sides, the whole thing built to scale as regards space and dimensions, so as to have the capacity of an ordinary eight-frame hive. The opening of the usual height, and about 1¼ inches wide, is at the lower right-hand corner. On Thursday preceding the fair we had shipped from a distance, for obvious reasons, a strong colony of Italian bees, and placed them in the fair building on a stand upon which we planned to put the observation hive later, an opening having been made through the wall of the building, and fitted with a tunnel, which tunnel was placed snugly against the central part of the entrance of the hive, the entrance on either side to the right and left being stopped by a screen. The bees in the original hive, therefore, were free to go in and out, which they did during Friday and Saturday. On Saturday evening the eight frames were transferred to the observation hive shown in the photograph. The tunnel was fitted closely to the opening in this hive. When Monday morning came with its accompanying crowds, the bees were working apparently contented, going in and out, bringing in pollen and going through the usual routine work common to any well-regulated hive. For the especial benefit, apparently, of the multitude who viewed the hive, the queen laid every day during the week, so regularly and systematically that I regretted not having a nickel-in-the-slot machine, with the wording, "Drop a nickel in the slot, and see the queen lay."

Note the sequel. After the fair, the observation case with its bees was brought to my room in the second story of one of the buildings at the Experiment Station, about half a mile from the fairgrounds, and kept in the dark for over two days. In the meantime, apparently all the young brood had emerged; and when the hive was placed in the same position relatively that it had at the fairgrounds, viz., with the tunnel leading to the open air, allowing the bees their liberty, they immediately swarmed, gathering in a bunch on the ground about 30 feet below and 10 yards to the west of the opening. We looked everywhere for our clipped queen, and, not finding her, presumed that she was was lost or dead. The bees, however, readily entered the hive placed by them; and, although fearful at any moment that we might lose them entirely, inasmuch as they were a valuable colony, I telegraphed immediately for a queen. Before introducing her my assistant examined all the frames covered by the bees which had swarmed and entered the new hive, and, lo and behold! there was our clipped queen, apparently uninjured. I will remark that she is quite a dark queen. The new queen that we had just received, therefore, was given to the few remaining bees in the show-case, was accepted, and is now laying.

My theory is that the young bees, emerging in considerable numbers while the hive was in the dark, rendered it (as there was already a large number) uncomfortably crowded, and the bees hurriedly made queen-cells and left at the first opportunity. The queen apparently had essayed to fly from the window-sill, and, falling clear of the wall of the building, had been carried ten yards to the west by the wind before reaching the ground. Am I right? To the enthusiasm of W. R. Ansell, of the Mille Lac apiaries, who


OBSERVATION BEE HIVE
EXHIBITED BY THE
Entomological Department of the Minn. State Experiment Station,
LEATHER COLORED ITALIAN BEES FROM MILLE LAC APARIES
These bees have freedom and are gathering nectar from surrounding country. The capacity of the hive and the number of bees equal that of an ordinary sized hive.

planned and designed the hive, our success is largely due.

F. L. WASHBURN,
State Entomologist.

Agricultural Experiment Station, St. Anthony Park, Minn., Sept. 14.

[This is probably the largest observatory hive that was ever made. As a rule, all such hives have only one comb and a few bees, thus making it easy to find the queen, and herein is the chief advantage of the unicomb size.

You are, no doubt, right in assuming that the queen essayed to fly from the window-sill, and fell down a little to one side of the entrance. The fact that the bees clustered so near the old entrance would indicate that the queen was there. It is not easy to find her majesty in an open cluster. While she is, as a rule, on the outside, one might look for hours and not see her, while it would be comparatively easy to find her after the bees had got settled on a full set of combs.

We found it impossible to reproduce the photo, owing to the fact that it was light-struck by reflection. We therefore had our artist make a pen-drawing, which will give an idea of the general size and character of the hive.—ED.]

A BAD CASE OF ROBBING.

How it was Stopped by Killing the Actual Robbers with a Gasoline-torch.

BY F. L. MORRILL.

This experience is probably what others have gone through before, and I give it thinking it may be useful to some one who may at some time be in the same predicament that I was in a few weeks ago. Just prior to the time I speak of, this locality was visited by a hot north wind. The heat was intense; and as I had shade-boards over all the hives, I thought none of the combs would melt down; and, being busy with other work, I did not visit the bees for several days. When I did I found the apiary in confusion. The bees were crazy, and began stinging before I came witin a quarter of a mile of them. The air was full of mad, stinging bees. I soon found that it was the worst case of robbing I had ever heard of. The whole yard of 180 colonies was demoralized. Some of the combs had melted in the extracting-supers; and as it was at a time of the year when there was no flow of honey it set the bees to robbing. I did not dare to close the hives up entirely, on account of the heat; but I immediately closed the eutrances so that only one bee could go in at a time, and then I tried every thing that I had ever heard of to stop robbing, but with no success. I flooded the robbers with water. I smoked them with sulphur smoke where they gathered on the hives. I exchanged the hives after dusting the bees, to see where the robbers went to; but they only began to rob their own hives back again. They would pounce on a strong colony, and go right in, no matter what the resistance.

I went home at night ready to sell cheap or give away every colony I had in the yard. After thinking the matter over I became convinced that, if I saved the bees, I must kill the robbers. The next morning I procured a brazing torch, such as painters use to burn off old paint, and, taking a supply of gasoline, I went for the robbers. I went from hive to hive, throwing the flame on them as I went, wherever I found them trying to get in. They were gathered in great bunches on the now one-beeway entrances. I soon had to cover my hands, as this seemed to make them so mad that they would tackle even the torch. They objected to having their wings burned off, but I was in no mood for leniency. I worked nearly all day in this manner, and along in the afternoon had things somewhat quiet again.

The next morning I used a kerosene-torch with just as good results, but I did not find many robbers, and the next day things were in normal shape again.

You may say that it was too bad to kill so many bees, and that it was a cruel way to do; but had I not done so I should have lost many colonies, and the loss of bees was no matter, as they were only consumers, there being no flow of honey, and no probability of any until fall. In using the coal-oil torch, care should be used so as not to let it get too hot, as it might explode.

Suisun, Cal., Aug. 23.

[It is no doubt true that, when there is a bad case of robbing on, only a *comparatively* few robbers are engaged in the business. If every bee in the yard were robbing, the air would be black with them. But this is usually not the case. It would be reasonable to suppose that a torch applied in the manner you describe around bees caught in the very act would soon destroy the actual culprits, finally bringing about peace and quiet in the yard. I should like to hear from our subscribers, whether any one else has tried this or a similar plan.—ED.]

E. E. R., Cal.—The conditions described in your letter of the 9th point quite strongly to fertile workers. Give a ripe cell from some other colony; and if this does not result in getting a good laying queen, scatter the brood among several strong colonies, and put in place of the brood taken out some brood from other hives.

J. B. S., Ark.—We do not think that smearing the inside of the hive with propolis would have much effect in inducing bees to stay in the hive.

In the matter of egg-laying, queens are pretty apt to cease in the fall of the year. Feeding a little sugar syrup may start her to laying.

A young colony is not as liable to have foul brood as an old colony on old combs.

ADDITIONAL THOUGHTS ON BEE-SMOKERS.

Jabbing the Editor's Ribs Again; Fuel for Smokers.

BY G. C. GREINER.

The smoker article by Mr. S. E. Miller, of Missouri, is tiptop. I call it "tiptop" because, with the exception of a few minor variations, it agrees with my views almost to a letter. It seems more natural to operate the smoker with the left hand, leaving the right to use the other tool, chisel, screwdriver, or whatever it may be. (I use a pocket screwdriver.) When opening the hive I stand behind it; after that I step on the right side, setting the smoker on the frames, on the opposite side from where I begin to handle the frames, or on the hive behind me, when not in use. If Mr. M is left-handed, his way would be more natural.

If the editor is anatomically constituted like the rest of us human beings, I can not understand how he can twist his thumb on the other side of the bellows unless he uses the smoker wrong way to from the further side of the hive, blowing the smoke toward himself.

If we have the right material — and every bee-keeper should have it — lighting the smoker can be done in a twinkling at any time. No shavings, kerosene, nor any thing else is needed. I have three shoe-boxes which I always keep well filled. No. 1 contains well-rotted basswood. It is so completely decayed that a piece taken in the hand can be transformed into powder by a slight squeeze. I find it in the woods where trees are blown down and are decaying. No. 2 contains rotten apple-tree wood. This is quite solid, about half way between the former and sound wood, so that it frequently requires saw and hatchet to work it up into proper shape. I have an old hollow apple-tree near the house that has supplied me for two or three years. No. 3 contains — I am almost afraid to say it, but will tell the truth — tobacco. This may go a little against the Root principle; but the Lord made it, and it is for man to use it according to his best judgment. So I own up that I use it by way of a little brier-pipe. I am not a very heavy smoker; but when I expect a real hot time I always light it, and I lay it in a great measure to my pipe (and gentle treatment) that I can handle my bees almost entirely without a veil, and mittens I never use.

I do a good share of my bee-work by simply using my pipe. This saves the time and trouble of handling the smoker and veil.

To light the smoker I take from box No. 1 three or four little pieces about the size of a finger, from one to two inches long; hold them in a bunch by one end over the open smoker; strike a match, and hold it under the other end. When the wood is well ignited, which will be in a second or two, I drop it, match and all, into the smoker. Then I throw in a few pinches of fine stuff, and after that a few coarser chunks from the same box, and fill the rest of the barrel from box No. 2; shut up the smoker, and, with a few puffs to get the fire well started, the smoker is ready for business for the next two or three hours unless it is used very steadily and needs refilling sooner. I never leave it open, as Mr. M. advises, and hardly ever lose a fire. Of course, all the material must be thoroughly dried before it will work as described.

Do we need a hook on the smoker? Yes, I consider it a desirable feature, if it is the right kind; but the one sent out by the Root Co. is not that kind. Its shape and place never suited me, and for that reason I never put one on, except the last one. When I received the smoker, one of the late style Corneil, and found that the manufacturers still took the pains to furnish a hook with each smoker, I thought I must have a wrong impression about this hook business, and persuaded myself to give it a trial. I fastened it according to directions; but before I had used the smoker half an hour I was well satisfied that I had made a mistake. After I had scratched my thumb a few times, it came off in less time than it took to put it on.

Venice, N. Y.

[It is all right, friend G., for you to have your notions about the method of handling smokers and the convenience of a hook; but we are not all constituted alike. One of the most extensive bee keepers in the world — perhaps the most so — gave me this idea of the hook on a smoker-bellows. I consider it a great convenience. Of course, there are sharp points; but what is the use of getting hooked? Those hooks are for the purpose of catching into the wood of a hive. When you handle a pitchfork you are quite liable to get hooked if you are not careful; but I imagine you always handle it right end to.—ED.]

HONEY — ITS SUPERIORITY OVER SUGAR AS A FOOD.

BY DR. J. H. KELLOGG.

Mr. A. I. Root—dear Friend:—I have your letter in reference to honey. I am sending you, with this, something I have written on the subject of cane sugar. I consider honey much preferable to cane sugar as a food. It is practically a fruit sugar, and is ready for absorption. Eaten in moderate quantities it ought to tax the digestive organs much less than cane sugar, and is to be commended.

Many persons ought to be able to utilize honey who can not use cane sugar. Adults often lack the power to digest cane sugar. Cane sugar is chiefly obtained from grasses and roots. It is a sugar adapted to herbivorous animals. One of the four stomachs of the cow secretes a ferment which is capable of digesting cane sugar. Digestion of cane sugar converts it into honey, so honey is practically cane sugar already digested.

Malt sugars are best of all, as they are adapted to the human digestive apparatus, being the natural result of the action of saliva on starch. I think maltose is preferable to all sugars; but honey comes next, and I frequently recommend my patients to use it when they do not find it convenient to use malt sugars. So I consider that you and your busy bees are engaged in good missionary work, and you have my hearty sympathy. Knowledge in health-lines is increasing at a very rapid rate these latter days.

Battle Creek, Mich.

[The above, from such able authority as Dr. Kellogg, ought to have more than a passing notice. Perhaps I should explain that some time ago I wrote, asking the doctor's opinion of honey as compared with sugar, and its effects on the health.

Permit me to suggest that the above refers, of course, to good well-ripened honey. We had on our breakfast-table this morning one of Aikin's packages of honey put up in paper. It is just as clean to handle as butter — perhaps more so. It cuts with a knife just easily enough to be handled conveniently.* At the same time, it can be handled with the fingers, almost without soiling them; and this, too, after it has been kept some time in a room where the temperature is 70 or more. This honey is certainly far superior to much of that on the market that has been thrown out of the combs before it was well ripened and sealed over. I suppose the source from which the honey comes might also have something to do with its digestibility.

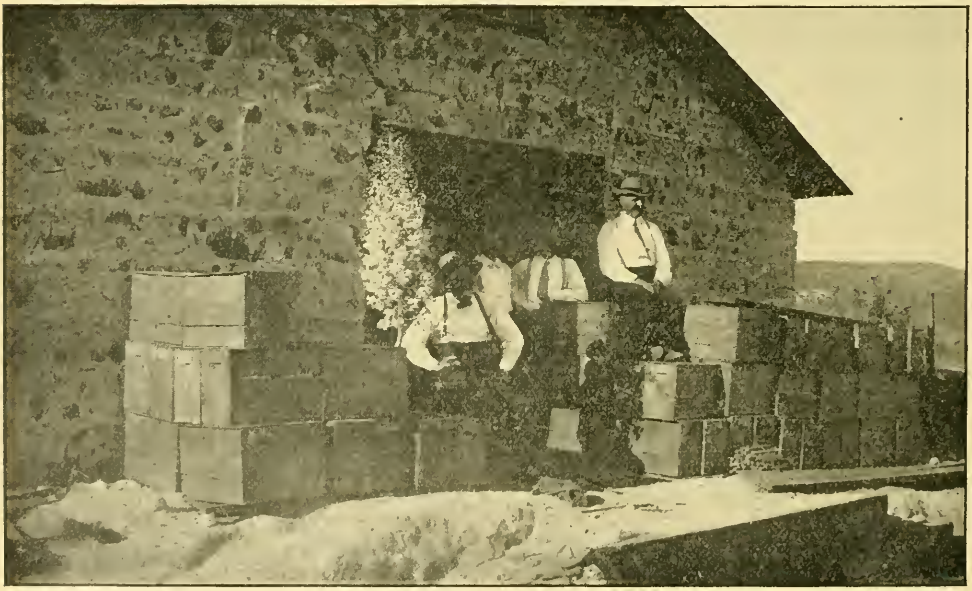
In regard to the pamphlet Dr. Kellogg refers to in his first paragraph, it is a pamphlet of 16 pages, entitled "Dietetics of Sugar." It discusses quite thoroughly the diseases that are usually caused by the excessive use of sugar, such as diabetes, etc. So far as I know, this pamphlet will be mailed on application to Dr. J. H. Kellogg, Battle Creek, Mich.—A. I. R.]

A VISIT TO L. E. MERCER'S APIARY, NEAR LOS ANGELES, CAL.

Mercer's Honey Crop for 1903; Sampling California Watermelons; the City of the Angels.

BY DR. C. C. MILLER.

The day after the Los Angeles convention, Messrs. Hershiser, Marks, and Miller went with L. E. Mercer to spend the day at what he calls his home apiary, some fifty miles from Los Angeles. A glance at the picture on next page will show that these four bee-keepers took interest in some things besides bee-keeping. The absence of coats and the area of shirt-front displayed suggests a hot day—and it *was* a very hot day—just the kind of day to make one's mouth water at the thought of watermelon. Dead stillness reigned, with no sign of life except the ground-squirrels running about, and a flock of California quails parading innocently by.



L. E. MERCER'S HONEY-STORAGE HOUSE.

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*Mrs. Root melted some of this hard white honey; and, while it is almost water-white, it is so thick at ordinary temperatures that a saucerful may be turned over, if done quickly, without spilling. Such thick well-ripened honey has a sweet flavor that commends itself at once as being wholesome.

The four are seated under the dense shade of a tree close to the house, F. E. Marks at the left, and then, following in order, Miller, Hershiser, and Mercer. The camera was manned by the county foul-brood inspector.

On page 964 are seen the same four outside Mr. Mercer's honey-house. Californians will be a little puzzled to see that beautiful cluster of yucca-blossoms at Dr. Miller's shoulder, for the last of August is not the time of yucca bloom. This one was found in full bloom entirely out of season (was it in compliment to the Los Angeles convention?), the flower-stalks of all others being entirely dead.

THE INNOCENTS ABROAD TAKING IN CALIFORNIA CLIMATE AND CALIFORNIA WATERMELONS.

Inside the building were stored the sixty-pound cans containing Mr. Mercer's crop for the season, collected from the different apiaries — 50 tons in all, or 100,000 pounds of honey gathered by less than a thousand colonies, spring count. A pretty solid block of sweetness! The two-can cases of honey seen outside the building did not belong to Mr. Mercer, and he did not know who was the owner. Some neighboring apiarist had brought them there, perhaps to be shipped with Mr. Mercer's. Five or six hundred dollars' worth of honey left in that way shows that California bee-keepers have confidence in each other, and it also shows that out in these wilds there is little fear from thieves.

[Your reference to ground-squirrels and California quails parading innocently by brings back many a pleasant memory among the mountains of Southern California, and when you speak of the fact that quite a lot of honey was left outside of the building shown in the picture, where it could be easily stolen if any one were disposed to do it, you also reminded me of the time when I visited a good many of the California apiaries, and found yard after yard where the honey-tanks were left out in the open, filled with tons and tons of the finest California extracted, and yet they were never molested. When it is understood that many of these yards were down in the canyons, or up on the mountain-sides remote from any dwelling or living being, and that they were visited by the owners only occasionally to extract the honey, the fact that this sparkling sweetness was not stolen speaks volumes for the honesty of the California people. Some tanks were left so exposed that a dog or any large animal might brush against the faucet and let out tons and tons of honey; but in only one instance did I hear of such a casualty taking place; but the bees promptly helped themselves and carried it all back again—into their little tanks from which it was purloined by man.

It looks decidedly as if it must have been very warm weather from the looks of the four of you in the picture; and I do not at all wonder that the watermelon was delightfully refreshing. Say, isn't it fun to eat California fruit right where it grows?

I have often said to Mrs. Root that I should like to spend my last days in and about Los Angeles—such a climate! such luscious fruit! such beautiful thick honey! such flowers, and such perpetually nice weather the year round! and the summer so near like the winter it would be hard for a tenderfoot to tell one from the other! No wonder that the Spaniards named it the City of the Angels.

Lest there be a flood of bee-keepers into Los Angeles, it may be well to emphasize the fact before set forth in these columns, that our brethren of the craft in this part of the world have a good many off years. They can not safely count on more than two good years out of five. They may get more. Then when there is no honey and no rain is the time that tries men's souls. Beautiful climate does not begin to make up for loss of honey, and waiting year after year for the flow that does not come. This past season happened to be a good one—very fortunately so, because it was the year when the National paid its respects to the "City of the Angels."—Ed.]

Heads of Grain
from different fields

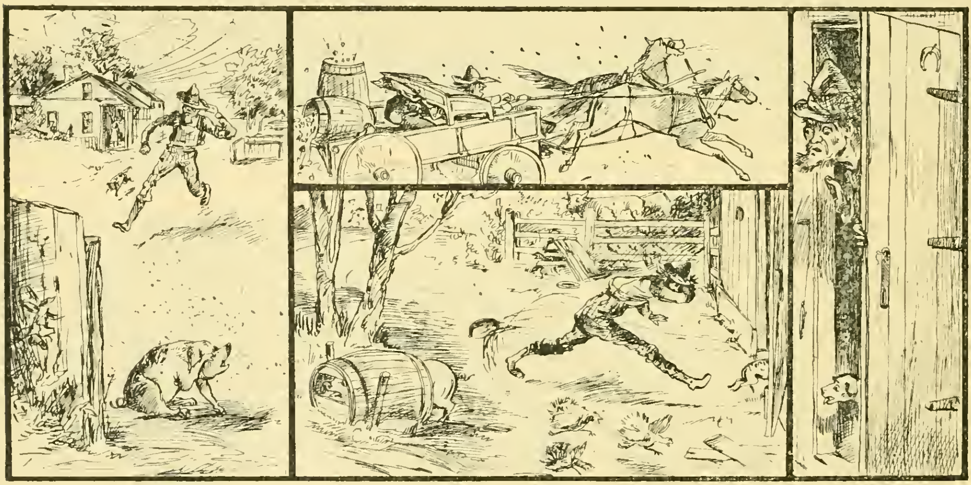
INFURIATED BEES STUNG EVERY THING IN SIGHT.

Talk about cross bees. this season beats any thing I ever saw. The other day they got after a hog that was somewhat lame and stung it so that it died in less than an hour after; when discovered it was simply covered with bee-stings, and the wild mob still after him. They chased the driver and team a quarter of a mile and nearly caused a runaway; every thing and everybody within a few hundred yards had to make for cover; dogs, cats, and chickens had to flee in every direction; even the sparrows had to light out, and one got killed. In spite of bee-veil and gloves, while I was trying to get the hog out of their reach I had to make several times for a dark stable, such was their fury, nor do I know what got them so mad as there was nothing to my knowledge to disturb them.

Jas. Bachler.

Fredericktown, Mo., Aug. 14.

[There are only two things that will drive bees into fury. One is robbing, and another bumping or tipping over a hive. If the pig referred to, or any other stock, had jarred a hive there would be a fracas. It is difficult to say in the present case what started the bees.—Ed.]



HOW THE BEES STIRRED THINGS UP, DOWN IN OLD MISSOURI.

SHOOK SWARMS NOT SATISFACTORY.

The shook-swarm system has been a failure in my hands. About the 10th of May the majority of my colonies had queen-cells started. I shook them as per your directions in Gleanings, but they were full of bees, and swarmed a month later — just in the height of the honey-flow. I had enough bees in each hive to fill the first story and two supers; yet they worked more slowly than moderately filled hives.

Don't you think overcrowded hives are worse than moderately filled ones? I have at present 20 colonies. Would you advise me to unite these next spring, and let each cast one natural swarm for the season, instead of proceeding again by the shook-swarm system?

Charles L. R. Barnhart.

Rensselaer, N. Y.

[The shook-swarm system has never failed to discourage natural swarming in our locality. I would be inclined to think that you shook them a little too early; but since you say that they had swarming preparations under way, this would be hardly possible.

Shook swarms act in a very different way with us than that described by you. We find that they go to work with almost the same amount of energy that characterizes natural swarms, and the stronger they are the better.

If your colonies come through winter in good order, it will not be advisable to unite them in the spring as you suggest. The uniting, if done at all, should be at the end of the season. If done anywhere near the swarming season it will produce the very same condition of strength, and attendant propensity to swarm which you desire to obviate. My advice to you is to shake your swarms again—a little later this time—and make a success of it.—Ed.]

WINTERING IN TENEMENT HIVES.

I am preparing to pack my bees in a tenement hive, and write to ask:

1. Is it best to leave a space between the hives, and pack them with leaves, or set hives close together? Will a case 28×24×96 inches in the clear be ample for four hives, or large enough for five?

2. Will it not be better to put small colonies, covering four frames, in nucleus hives rather than have them in full-sized hives with division-boards to contract the same?

(Rev.) C. Gallimore.

Mt. Vernon, O., Oct. 10.

[1. In wintering bees on the tenement plan, the colonies inside of the tenement itself should be put as close together as possible. It would be desirable to have *thin* boarding separate them. Years ago, when we wintered in tenement hives, four colonies in a tenement, we observed that the clusters of bees worked over to the corners of each hive, making one big cluster divided off by the partitions of ⅜ boards.

A case of the size you mention would be ample; but a tenement hive will not take care of an odd number as well as an even one. Four, six, or eight can be bunched in a little more compactly, as you will readily see. I would not advise making the tenement hive larger than to accommodate four colonies. While tenement hives are very good they are heavy and unwieldy, and are not generally used. If you have a good dry cellar and only a few colonies, I would advise you to winter indoors, for the saving in stores will be sufficient to amount to quite a little. Outdoor-wintered colonies require from one fourth to one-half more stores than indoor.

2. You ask whether it would not be better to put small colonies covering four frames in nucleus hives rather than in full-sized ones with division-boards. I would reply in the negative, if the bees are to be wintered outdoors; but if they are to be wintered in a tenement hive, nucleus-boxes in which the bees could be put compactly together would be better. There must be as little empty air-space for the bees to warm up as possible in any case.—Ed.]

THAT NON-SWARMING STRAIN OF BEES—MORE ABOUT IT; SEE PAGE 935, LAST ISSUE.

Mr. A. I. Root:—In answer to your inquiry I will say that the season of 1901 was the best I have experienced in this section for honey. I had 60 colonies—42 in my home apiary and 18 in an out-apiary. These latter were hybrid bees. I took them away on that account. Those left at home were pure stock, nearly all reared from a selected queen of the Doolittle stock—the one I showed you, whose bees went over three miles to find the black-sage white honey while most of the other colonies were storing darker honey. During that season I had no natural swarms from that strain, and secured 400 lbs. per colony of extracted honey. The native strains swarmed excessively, and I got a much smaller yield of honey in proportion. The seasons of 1902 and 1903 were poor for honey, and there was much less swarming with the native strains; but with the Doolittle strains I have not had more than two natural swarms in the three seasons.

Since you were here I have examined my out-apiary, which has both strains. The colonies reared from my home queen are heavy in honey, while the others have used most of theirs up in late breeding. Our native strains are a mixture of Italians, Cyprians, and Holy Lands. Mr. Harbison says the latter predominate. He introduced them here quite a number of years ago. They are excessive breeders, and in poor seasons use up all the early surplus honey for that purpose; and the result is, neglected apiaries die from starvation. If they had been the other strain of bees they would have had sufficient stores to carry them over. I am not sure but that some of the Cyprian or Carniolan blood mixed with the Italian, in the hands of an intelligent manager, may be a good thing; yet for the average *California* bee-keeper I think the pure strain the best.

El Cajon, Cal. G. M. Hawley.

[Well, you see, friends, I did make the matter a little stronger than friend Hawley puts it; but, notwithstanding this, it is a tremendous testimonial in favor of using queens reared from a very choice breeder.—A. I. R.]

WHY THE HONEY SOURED.

Why did my two jars of white-clover honey sour? I put it up in pint Mason jars with a small chunk of comb honey in it. When I was extracting it the last time I noticed, in uncapping, bubbles in the honey. Was it souring then? If so, why?

I put up 500 pints of white clover, and two were returned by the merchant sour. I am afraid I shall lose his trade, and he is my best customer. J. J. Burke.

Pittsburg, Kan., Oct. 8.

[I am not able to explain why the honey you describe soured. You evidently took every precaution necessary if the honey was sealed in the combs; but it sometimes happens that honey from certain sources will sour for reasons that we can not explain. The bees might gather just enough honey from some plant that would cause all the other good honey with which it was mixed to ferment and finally sour. I certainly should advise taking back all samples that are not first quality, and the honey should be boiled after extracting. If it is very sour you can do nothing more with it than to make it into honey vinegar; but honey slightly sour may be rendered good by boiling, and feeding it to the bees in the spring to stimulate.—ED.]

HOW TO KEEP HONEY FROM CANDYING IN A ZERO TEMPERATURE.

We note in your last issue some comments on a method for keeping honey from candying (extracted). Some twelve years ago we gave you the history of a gallon of honey; but whether it ever saw print or not is more than we can say at present; but we will give it again. At the above time, in June or when the first white-clover honey came in, we extracted a gallon, which we wished to use for making queen candy. As the honey was rather thin we placed the jar on the reservoir of the kitchen stove, with the injunction that it was to stay there till we removed it. Well, it stayed there for perhaps two months, the temperature varying all the way from 75 to 150 degrees or perhaps a little higher at times. This honey was kept for two years, and part of the time in winter, when it went as low as zero, but it never candied. At present we keep our honey in five or six sixty-pound cans blocked up back of the kitchen stove for several weeks before bottling. We believe this will keep it from going to candy until the grocer sells it. We find alfalfa honey quite stubborn. You can melt this honey in the oven, and it's ready to sugar the next day or two.

In the same issue of GLEANINGS we also notice something about the Swarthmore method of getting queens fertilized. We tried it on quite an extensive scale last season, but it failed to worked satisfactorily. We used up three or perhaps four hundred virgins. The best we ever did was to get six laying queens out of eight. Some of the boxes gave us three and four laying queens, while the majority would give us but one, two, and three. We tried this method on a large scale — tried it under all circumstances — tried it at all seasons of the year, but the intermingling of the bees is what prevents it from being a success. To have queens mated with the smallest loss possible, there is but one way, and that is to give each individual queen a nucleus to herself. H. G. QUIRIN.

Parkertown, O.

[Some two or three years ago Mr. Henry Alley announced that he had a process for keeping honey liquid indefinitely under all conditions. He did not immediately make it public; but when he did, it was nothing more nor less than keeping the honey in a warm temperature for a period of thirty or sixty days, and then sealing.

Although I have had editorial charge of this journal for a longer time than my father, I do not remember to have seen the method mentioned before it was given by Mr. Alley; so if you sent it on to this journal it must have come before my time. Whether it was published or not, I can not say.

Your experience in getting queens fertilized in small boxes or nuclei is just about like our own. Swarthmore, however, says he makes it work, and has promised to prove it to me if I will go and see him next summer, which I have partly agreed to do. —ED.]

ANOTHER INSTANCE OF FORMALDEHYDE FAILING TO CURE.

Last spring I discovered foul brood in several of my colonies. After shaking the same on new frames I found I had about 120 diseased combs. Having seen formaldehyde recommended as a disinfectant I decided to try it. I sent to C. H. W. Weber and got a generator and half an ounce of the drug (solidified). By tiering up several hive-bodies of diseased combs on one of your new Danz. covers, using one of the same on top, and giving the whole some three coats of paint, I secured a perfectly air-tight receptacle. I gave the formaldehyde in bigger quantities, and kept on applying it for a much longer time than advised, but it proved a failure; in fact, a cricket came through the process of fumigation apparently unscathed, and hopped out in a lively manner from between the top-bars as soon as I opened the stack of hives. I also made an experiment to see whether the drug would kill moth-worms when later they attacked these combs; but while it destroyed the *millers* the *worms* were not in the least affected. In my opinion, formaldehyde is not as powerful as sulphur.

Cantril, Ia. A. B. TACKABERRY.

[You will note that Prof. Harrison says a great deal of the formaldehyde of commerce is very much adulterated; but he also suggests that a stronger dose ought to accomplish the result; but the mere fact that a cricket came through the process of fumigating apparently unscathed would indicate, seemingly, that the drug you had was very, very poor. It certainly ought to be strong enough to kill all living insects before we would expect it to kill the microbes of a disease.—ED.]

S. S., Ont.—You can easily Italianize your bees in the fall. In fact, that is the best season of the whole year to do it. If the combs are built together your better way would be to transfer by the directions given on page 32 of the catalog we are sending you.

J. E. C., Col.—The standard size of sections is 4¼ square, 3⅝×5, and 4×5. The thickness varies all the way in the square section from 2 inches wide to 1⅜. The standard plain section, 4¼ square, is 1½ inches wide. The standard 4×5 plain is 1⅜ wide; the 3⅝×5 is 1½ inches wide. There are some sections 4½ square, 7 to the foot; but very few of them, comparatively, are made.

OUR HOMES,

BY A. I. ROOT.

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil.—JOHN 17:15.

He that overcometh, and keepeth my works unto the end, to him will I give power over the nations.—REV. 2:26.

When I got back to my Michigan home in October, I found a very cordial welcome from the Sunday-school, especially from that class of thirty or forty I have told you about. As there was to be no preaching that evening (the pastor comes to that church only once in two weeks) one of the girls in my class came to me after Sunday-school, saying something like this:

"Mr. Root, there is no preaching to-night, and won't you talk to us if we will all come?"

"Why, Alice, this should have been thought of sooner, so as to be announced before the closing of the school. I am afraid the people are not ready, just as I am not ready. I have made no preparation for any talk."

"But, Mr. Root, *we* will give the notice, and guarantee that you will have an audience; you always have something good to say to us, even if you don't have much notice ahead."

I still tried to excuse myself; but when another and still another of the young people from my class put in their plea, I told them I would gladly do the best I knew how; and when the hour came for the evening services, the sight of a very fair audience of bright expectant people (mostly young) made my heart glad.

Now, I hope these same young people will excuse me if I mention some things that I would not think of mentioning were it not that I have a feeling it might do good to the young people in other neighborhoods and other churches.

In the further corner of that little church — that is, one of the corners furthest from the minister's desk, the young people of the neighborhood usually gather. They are busy, hard-working people, especially at the time of year when potatoes (the main crop of that region) are being harvested. These people, young and old, work hard from daylight until dark in October. There is no let-up from their labors until Sunday comes; and I am very glad indeed that Sunday rest is so generally observed in that region. Perhaps one reason why the Sunday-school is so well attended is that these hard-working folks, especially the younger ones, are constantly watching for some opportunity to get together. We in the towns and cities have no idea of the way in which they enjoy any sort of recreation. As a consequence, there is more or less visiting on Sunday. Now, while I think this is an evil, I am led to believe it is by no means the worst thing in the world. If young people get together in their various homes at seasonable hours, it is not to be compared with meeting in a saloon open on Sunday, or some sort of gambling-den. Those who attend Sunday-school regularly are not apt to be frequenters of the saloon. Well, now, let us get back to that young people's corner.

The seats are long, and they usually crowd them (in that corner) pretty full—eight or nine, and sometimes ten of the smaller ones, in a seat; and, as a natural consequence, there is a good deal of merriment and visiting before service begins, and, I am afraid, sometimes *after* the services have commenced, and even during the preaching. I have been absent so much during the past summer I do not know how bad it is; but after one evening's service the good pastor gave the young people in that corner quite a "talking-to." It was very kind, and none of them should have taken offense. But somebody told me the young folks did not like him very well because he "scolded" so much about their whispering and playing during services. Now, while I think of it I remember that, a year ago, Bro. Reed was annoyed in the same way, and I thought at one time he was altogether too severe in his reproof. As he is old in the ministry, however, he may have been right and I wrong. When I spoke to him about it he said the remarks were directed mostly to one young woman who had to be reproved the second time during one service.

Now, friends, this is a problem that has to be met almost everywhere; and I am sorry to add that this sort of irreverence for the house of God (or, perhaps we might say, the *man* of God) has often stirred up unchristianlike feelings, not only in the hearts of the young people, but, I fear, in the heart of the pastor. I do not know just what the proper remedy is. I suppose it depends largely on circumstances; but I do believe that the *love of Christ*, and the influences of the Holy Spirit, in the heart of the pastor, *ought* to correct the evil, and leave only feelings of love on both sides, instead of bad feelings.

When I was ready to announce my text I found the young people crowded into that further corner as usual, and I prayed for grace and wisdom. God answered my prayer, and gave me—I was going to say the *victory*. But I do not think *victory* is the proper word. It might hurt the feelings of some one among those young people whom I love; and God knows I would not do any thing nor say any thing to mar the kindly feelings existing between us for any thing in the world. Let us say, through kindness and love I came out winner.

We have in the church a very pretty little organ; and sometimes we have quite a nice little choir of young men and women. Of late, however, the young men do not come up before the audience with the young women. They make the excuse that they do not have time to practice during the week. On this particular evening those back of the organ were all young ladies. After I had prayed for wisdom I said something like this:

"Dear friends, it makes my heart glad to see you all gathered here to-night; and it makes it gladder still to think that you have honored my poor self by asking me to talk to you. I am not a preacher, as you know, and I am not an *orator*, as you also probably know; therefore I shall give you only a friendly familiar talk; and as it is a little hard on my lungs to make you all hear (and I want every one of you to hear every word I say), I shall be very glad if you will come up near me and occupy the front seats. I want to look into your faces, and I want to suggest some things to you that I think will help you all your lives to be better men and women."

At this juncture I began to realize that the boys in that further corner would hardly have the courage to come up in a body so near the pulpit. I do not think they feared *me*, but perhaps they felt a little embarrassed about coming up so near what is, in revival times, called the "anxious seat." But in a moment a bright idea came to me. God sent it, I think, in answer to my prayer. I turned to the young ladies back of the organ, and said, "If the singers on the platform will take the front seat, I am sure the young men will come up and sit right back of them."

At this there was an audible titter among the boys and girls; but I saw in an instant that my plan had appealed to their best nature in the right way. They arose in a body, and came up as near to me as the seats would permit, for I stood just in front of the pulpit. They did not know how I thanked God; but I realized then and there the result of that talk was going to be effective. Perhaps never before did I realize how dear to my heart are those young people in that neighborhood. Too often the minister meets people only in the church, in the *role* of a preacher; but it was my privilege to be around among them in their work in the fields more or less. My love for the potato industry has given me an advantage, perhaps, that many pastors do not enjoy. The talk I gave them is one I gave in these Home Papers some years ago. I will go over it again briefly.

"In Pilgrim's Progress, which I hope you have all read, Christiana and her children, while at the Interpreter's house, were shown an object-lesson. A poor man with a little rake was stooping over and spending his time raking up straws, sticks, and dust. While he did so, a shining angel stood over him, holding just over his head a golden crown, and the angel offered to swap the crown for his poor little ricketty rake. But he refused to listen to her, and even refused to look up, but continually rejected the offer of the crown. You see, if he let his rake go he could no longer scrape together sticks, straws, and dust."

Then I continued, something as follows:

"Dear friends, this is a figure from Bunyan's Pilgrim's Progress. It is supposed to be a figure from real life — such lives as you and I are living. Is it possible that we in our busy daily cares are struggling after only straws, sticks, and dust, while a golden crown is just over our heads, and we won't even look up, much less lift our hands to take it as a free gift? Bunyan got all his figures from the Bible. In fact, Pilgrim's Progress is founded on the word of God. The question that confronts us to-night is, 'Is there really any such crown within our reach? Is this a *fiction*, or is it really *truth?* Are there opportunities before us as young people that we might embrace if we could only bring ourselves to make the sacrifice of letting go the straws, sticks, and dust ? ' Now I am going to give you some Bible readings to-night to show you what the Bible says about it; or, if you choose, we will together look the Bible over and see what authority it gives Bunyan for such a statement.

"You will notice the straws, sticks, and dust that this man gave his whole life to gathering, represent selfishness. He was trying to scrape every thing within his reach for *self*. A farmer, for instance, after he has paid for his own farm, makes a slave of himself and may be of his wife and children, to get another farm, and still another. I mean one of the kind who is so grasping that he loses the respect and good will of his neighbors and everybody else; one who can not take time to go to church nor to remember the Sabbath day to keep it holy (what shall it profit a man if he shall gain the whole world and lose his own soul?), and, we might add, one who never takes time to look above his head and see a golden crown continually offered him day by day by the shining angel. But let us come a little nearer home. Many of you who listen to me have no farms. Perhaps you may say truthfully that you have nothing but health and strength. But are you sure, dear friends, you too are not wasting your time in looking continually down after the straws, sticks, and dust? Are you improving your leisure moments in good reading? Many of the periodicals, I am sorry to say, I have seen in various homes, are no better than straws, sticks, or dust—perhaps worse. If you want that golden crown, be careful of your reading. I am sure you admire the passages I have selected from the Bible that I have read to you here to-night. That Bible is full of such hopeful promises. Whether you belong to the Endeavor Society or not, make a pledge to yourself to read the Bible just a little, if not more, every day of your life, and then ask God to guide you in looking forward to that proffered crown. The crown is *above;* the straws, sticks, and dust right below, on the ground in the dirt. A bright young lady said to me once, 'Mr. Root, when I go to a dance, the next day I have a feeling that I have gone *down* a notch or two. When I resist the temptation to go to a dance, and go to a prayer-meeting instead, the day after that meeting I have a feeling that I am lifted *up* a notch or two. I am satisfied that the one tends downward, and *only* down, and that the other is upward, and *always* up. I am not going to try to attend prayer-meetings and dances *both* any more. I am going to choose the prayer-meeting, and let the other go.' That was years ago; and you can see by her bright face now that she has her eye on the crown. I do not know how much dancing there is in this neighborhood. I have not seen any card-playing. I hope there is not any of it. It certainly should go with the straws and sticks and dust, for it does not leave any thing behind it. I suppose there is more or less drinking at the saloon near by; but I am sure from the looks of these boys here before me that none of them spend their money for beer. Let me emphasize the importance of building Christian character in another way. There is a greater demand just now for boys and girls with a good solid Christian character back of them than ever before since the world began. If you read the papers, you know of the corruption that exists in all our great cities. You know, too, of the shameful revelations that have come up within just a few days among those holding office in the postal department of the United States. Selfishness—shameful, awful selfishness! Men who have been paid large salaries to *protect* that department have, right while drawing their pay, sold out the property of the United States in order to get a few thousand dollars into their own pockets. They have lost sight of the crown that awaits them as the reward of every honest man, and have been after straws, sticks, and dust. Yes, they have gone down to the depths of shame for a few paltry dollars. Now, the great cities are sending out into the country continually for honest boys and girls. They will pay almost any price for them, especially if they are educated and skillful. The women get great pay as skillful typewriters and in other important places in our offices and factories. But they must be *honest*. The government or the employer does not demand that they be *Christians;* but the word of God tells us there is no real true honesty—unselfish honesty—without the love of God in the heart. Are you, my friends, looking up toward that crown that is held by the guardian angel just over your head? Remember the text about *overcoming*. It is the ones who 'overcome' who are to be made rulers over the nations. Are you overcoming the temptations that beset you? This has been a beautiful bright Sunday. It is the first Sunday we have had this fall since the day when hunting is permitted by law. You have been so busy during the week that you could hardly think of stopping to shoot partridges. May be some of you have been tempted to hunt on Sunday, God's holy day. Did you *overcome* the temptation? It is those who overcome who are permitted to reach the crown. I do not know *what* temptations present themselves before you, dear friends. But you know; and the Holy Spirit will surely guide you, if you make it a part of your life to ask the great Father above day by day to guide and direct you in overcoming selfishness and in reaching up to those higher things that concern the welfare of your neighbor as well as yourself. God has given us glorious opportunities. It rests with us whether we shall rise up and look up, or whether we shall, with bent backs and eyes cast toward the ground, spend our lives in raking up these straws, sticks, and dust.

"Some of you are now attending school. Perhaps a few of you will go away to school sooner or later; but quite a number of you (and I have talked with some) feel that the stern duties of life are such that you can not go to school any more. Do not be discouraged, friends. There are periodicals or class journals published nowadays that will enable a young man or woman to become proficient in almost every line of business. If you will probably follow farming for a livelihood, by all means avail yourselves of the leading agricultural papers. Employ your time in getting useful knowledge in regard to the occupation you expect to follow. The great Father above is pleased to see us study him through his works; and one can nowadays get a good education in almost any line of work by carefully studying the books and periodicals that are published. Time spent in this way will not only be profitable for years to come, but it will enable you to be helpful to your neighbors; and every thing of this kind tends to build up Christian character, and, indirectly, reaches out toward that golden crown. Now, friends, shall it be a crown of *righteousness* we are striving for, or shall it be the sticks and straws and dust of *selfishness?* May God help you in your decision."

I scarcely need add that there was not a whisper during my talk of twenty-five minutes; in fact, I never in my life saw an entire audience give better attention to a speaker. With a prayer in my heart that this little story may help some other teacher, especially where he is met with considerable inattention on the part of his hearers, and with a prayer, also, for the restless wide-awake young people *all over* our land, I close this Home Paper.

SELLING HONEY ON SUNDAY, ETC.

I am much interested in A. I. R.'s remarks on Sabbath observance It looks to me as though a man's desires had much to do with forming his convictions. In twenty years of Christian work I have never found it necessary to buy or sell or travel on the Sabbath; and I question whether the doing of those things, even in exceptional instances, does not lessen the respect of non Christians for Christians and for the cause of Christ I am glad that GLEANINGS has a place for such discussions. AUSTIN D WOLFE.

Parkville, Mo., Oct. 13.

Mr. Root:—I have just read that letter of F. M. Morgan's, on page 853, on selling honey on Sunday, and your answer to it, and I must say that it does not suit me. For 25 years I have been keeping bees, not very extensively, being a. farmer, but because I liked to handle them. Sometimes I had fair returns, and as often very little; but in all that time I have no recollection of selling one pound of honey on Sunday. Once I did give one section to parties passing, going on a visit, and they paid for it as they passed back. I have refused a great many; but to my knowledge not one was offended — usually they came again. Once in my absence parties came eight miles, and no one at home but my daughter. They coaxed her hard, telling her that I would not know it. "Yes, but God would know it," she said. "That will do," they said; "we don't want it."

Now, I am not particular. If they get offended they can. I won't sell on Sunday except for sickness, and then I always give it free. J. LAMMEY.

Dugger, Ind., Oct. 15.

Friend L., I may be wrong in the position I have taken; but I still think we do a greater harm in driving people away from Christ Jesus than in doing a little business on Sunday. I can agree with you pretty well except where you say, in your closing sentence, "Now. I am not particular. If they get offended, they can." Please bear in mind that Jesus, while here on earth, most vehemently rebuked the Pharisees for laying so much stress on their careful and punctilious observance of the Sabbath. It is hard to lay down cast-iron rules for a Christian to follow. If he has at all times the love of Christ in his heart for his fellowmen, this love will guide him safely and unerringly. I still think we should be doing more harm by stirring up a man's bad feeling, especially if he is one who has never had much of a glimpse of Christ's love, than by going out of our way just a little to serve him on Sunday. May the Holy Spirit guide us in this matter.

NOTES OF TRAVEL BY A. I. ROOT.

OUR CABIN IN THE WOODS.

When we got back to the cabin in the woods in the fore part of October, I found every thing around there grown up to weeds. I confess I lost some of my enthusiasm somewhat. In the first place, I had been taking things easy, and was unused to *work*. I was strongly tempted to think I was pretty old to perform hard manual labor; and I will tell you confidentially I made up my mind that first day to get men enough to gather my crops, what there were, and get back to Ohio, where I did not *have* to work unless I felt like it. Such thoughts did not make me feel happy, however. I knew from past experience that about the worst calamity that could befall *me* was to think of taking things easy, and getting along without hard manual labor. Josh Billings once said he knew by experience that it is bad to tell lies. Well, I think *I* can say from personal experience that Satan always finds some mischief for idle hands to do. Yes, old as I am (I shall be 64 the 9th of next month) I know from personal experience that, if I do not have something *good* to occupy head, heart, and hand, Satan will get in his work somewhere. When God said to Adam, "By the sweat of thy face shalt thou eat bread," that curse fell heavily on my poor self. Come to think of it, I do not know but that, in my case, it is *not* a curse. I have sometimes been tempted to think it was almost a blessed promise. Listen a minute. I spent a great part of one day in going around among my neighbors trying to find help. Everybody had just all he could do, and more too. Two of the boys who had worked for me heretofore worked one day each in the rain. I kept along with them as well as I could. One of them, while digging potatoes by the bushel last year, made something over $2.00 a day; and he worked fully as hard that rainy day as he did while he was digging potatoes by the bushel. This present season I could not very well have them dig by the bushel, because there were so many different sorts that had to be kept separate. Another thing, the ground had been in potatoes the year before, and there were more or less "volunteers" that I wanted sorted out. When night came I do not know but the boys were a little surprised when I paid them $2.00 each. During the summer I had been in the habit of paying them only $1.25; but I told them I should feel ashamed to offer them a less price, especially after the way they had worked in the wet. Of course, it did not rain very hard, and occasionally the sun came out and encouraged us. Well, after that rainy day the boys said they could not possibly neglect their own work any more; and I decided I would finish up the potatoes myself, taking plenty of time. Dear friends, I have been over this ground before, again and again; but, notwithstanding, the experience of the last three or four weeks was a revelation to me. You know how often I have prayed for wisdom and understanding in regard to this matter of human infirmities. I have asked God to give me wisdom in advising my fellow-men who were sick and ailing. I have considered the medical advertisements and the well-filled drugstores. Did God intend his children to get well by "dosing" themselves? I think he intended there should be physicians in the world, for the evangelist Luke was called "the beloved physician." When I commenced harvesting my crops alone I would get tired in about two hours, and then I would read a daily paper while I rested. Then the weather would be catching, or there were particular circumstances that rendered it important that a certain task should be finished by a certain time. Pretty soon I skipped the newspaper till it was too dark to work. I worked right along till Mrs. Root announced dinner. In fact, I worked so hard under the enthusiasm of getting the work done, that when I came to dinner it seemed as if I ached in every bone and muscle, I was so tired. A good many times I would take a little nap before dinner. But, oh such dinners! Perhaps they were not very remarkable, but Mrs. Root always has good dinners. But, what an appetite I had! A good many times at dinner I would say, "I do not know but I have been working harder than I can stand. It seems now as if I were just about used up." But after the good dinner I felt very much recuperated; and then to prevent playing out before night I usually had a good nap *after* dinner; a little one before dinner, in order to rest up enough so my digestive apparatus could take hold without being too much fatigued; and then a nap of nearly an hour after dinner to let nature make repairs and get ready for another "run." Yes, this human machine of mine often makes me think of a thrashing-machine or an automobile. After a hard job the machinery should not only be well oiled up, but every thing should be examined to see that it is in condition to do its best work. Well, these wonderful hidden forces of nature attend to all this while we are asleep. When the machine has entirely ceased running, God does it. Praised be his holy name.

Well, after that after-dinner nap I would get out of bed, stretch myself, and say, as I straightened out my limbs, "Well, I am all in good running order again. My muscles are all right, and there is not a bit of pain or soreness anywhere. Bring on your work." If I did not add, "May God be praised for this robust health," I felt it in every fiber of my being. A great part of the potatoes were on the hillsides around the cabin. With the Daisy wheelbarrow I could wheel these down to the barn on lower ground cheaper than they could be hauled in with a team; and that Daisy wheelbarrow seems to be a wonderful invention for developing the muscles. Why, dear friends, it is worth all the Indian clubs and dumb bells, and all the rest of the machinery for developing the muscles, that were ever invented. Instead of investing in these things, just buy yourself a *wheelbarrow* and then do some useful work by wheeling heavy loads every day. Two bushels of potatoes made a very fair load for my strength and muscle. Mrs. Root keeps talking to me about straightening up, and not getting bent over, as so many old people are. Well, with the Daisy wheelbarrow one can stand just as erect as he chooses; and with two bushels of potatoes, making a load of 120 lbs., I do not know of a better muscle-developer for arms and legs than this exercise. Why, I actually felt my muscles growing and enlarging day by day. And here comes in another thing: I never enjoyed eating *fruit* in my life as I did this past fall. The apples were furnished by the neighbors. In fact, they made us presents of them faster than we could use them. The peaches grew on our own trees, and I am sure I never tasted such luscious peaches before in my life—no, not even in California. I suspect the bright, exhilarating air around Grand Traverse Bay has something to do with it. When I first purchased my fruit-trees I selected peaches that would ripen in July and August, for I thought then we should spend only the summer months up there in the woods. I paid a big price for my fruit-trees in order to get some true to name, and first-class. Well, three trees that were labeled Yellow Rare-ripe, and which were said to ripen in August, were covered with dark-green foliage, and beautiful large peaches that were just getting ready to pick along the last of October. Instead of being yellow they are white inside. I kept watching them and feeling of them every day to see when one was just ripe for use. Of course, they were not what I bought them for; but it did seem as if they were the most luscious peaches, especially when I was covered with perspiration in wheeling great loads of potatoes, that I ever tasted in my life. Some of my trees had only two or three peaches on, and a few of them only one. I was watching them very anxiously to see when they were just at their best. By and by I was forced to conclude that somebody *else* was watching them also; for when I decided they were almost ripe the peach would be gone. I could not believe it possible that the boys who came around frequently to our place were taking the peaches (the new varieties) that I was so anxious to test. Permit me to say right here that, after all our experience in leaving the cabin and surroundings for many months at a time, we have never missed so much as a nickel's worth. Everybody in that locality seems to respect the rights of others. Potatoes are left in pits in the fields perhaps a mile away from any house, all winter long, and I never heard of any being stolen. Well, one Sunday after our return from Sunday-school I saw a big gray squirrel skip out of the woods and run up a peach-tree in a twinkling. He came down again almost as quickly with one of my big red-cheeked peaches—one that was just about ready to pick. I had found the thief. I put after him, yelling with all my might, to make him drop my big choice peach. Not he. He probably concluded that, when he had a good thing in his possession, it would be a bad plan to let it go. Finally I pulled off my fur cap and sailed it at him. When it came pretty near dropping over his head he let go of the peach, and scampered off about as fast as you ever saw a squirrel make speed.

Mrs. Root had been "making friends" with the squirrels until they were getting to be very sociable. One day when she went to pick our first early peas the squirrels had taken them so there was hardly a pea left; and one saucy fellow sat on a log near when she was picking out the few she could find, and "scolded" at a great rate because she was meddling with *his* peas. I told her what I saw, and said we should have to gather all our peaches the next day or we should not have any left. Toward night on that same Sunday I began to think that the few remaining peaches might be taken during the night, and I said I would go and get what were left, even if it *was* Sunday. I wonder if some of the good friends will not accuse me again of being loose in my ideas of keeping the Sabbath holy. Well, Mrs. Root and I went out with a tin pan to get the peaches; but we did not gather any of them on Sunday after all. Do you know why? Why, the squirrels got ahead of us. They evidently had held a caucus in regard to the matter, and decided that, if those peaches were not gathered soon, on that very Sunday, these new trespassers on their domains, which they had held during the whole fall, would be robbing (?) them. Some of you may inquire why I did not keep a shotgun and have squirrel for dinner. Because I have never learned how to shoot any kind of gun or pistol as yet. When we want a squirrel for dinner we usually catch one with a steel trap.

Now a word more about hard physical work for a man between sixty and seventy. I do not know how it is with the rest of you, but it does not hurt *me* a bit; on the contrary, it does me good to work every forenoon and every afternoon until my bones and muscles ache with fatigue. In a recent issue of the *Practical Farmer* friend Terry says an old physician told him that hard work does not hurt a man provided he rests enough during the night to feel sound and well the next morning. Well, I think I never did more hard work—that is, muscular work—in my life before than I have during the past few weeks, and I certainly never before enjoyed such exuberance of health. I can not say how much that northern climate has had to do with it, but I suspect it has been a large factor. The children at home tried to persuade me that I would do just as well here in Medina if I kept away from the office and factory, and did the same amount of hard work right out in the open air. There may be some truth in this, but it is not all of it. It is true that, when I am up in the northern woods I do not get into the office at all. My correspondence and writing for GLEANINGS is done rainy days and evenings. I have made now something over a dozen trips to Northern Michigan, and it has been a physical building-up *every time*—there has not been an exception. After I get back here to Medina my good appetite and healthy digestion hold out two or three weeks. After that time I usually begin to run down. The hot springs at Agua Caliente gave me perfect digestion without hard muscular work; but I did not have the enthusiasm and love for hard work that I do in Michigan. I suppose the hot climate of Arizona would make a difference.

Now a word about the potato business in the Traverse region. As the prices were up last year, and are now double what they usually are in that locality (40 to 45 cents), there is a great acreage, and people are worrying a great deal about getting them dug before cold weather. As a consequence, help is very scarce. One farmer, I am told, offered $3.00 a day *and board* for men to dig and pick up potatoes, and he could not get men at even that price. As a result, children stay out of school, and the farmers' wives and daughters help to pick up. One of the good women told me at Sunday-school she had been picking up potatoes, and she said she never did any work in her life that gave her such a ravenous appetite, and health corresponding. Some of you may smile about getting down to such drudgery as picking up potatoes; but, my friend, it is people who "do not *have* to" do such work that are to be pitied.

Mrs. Root and I made a call at our neighbor Hilbert's just before we came back to Ohio. Mr. Hilbert himself is now in Cuba, and his wife and some of the children expect to follow him in a few days. Mr. Hilbert's son, Holly, is taking care of the farm-work. I found him with two men in a big field digging potatoes. The variety was Carman No. 3, and they were getting about 300 bushels to the acre. The two little folks, Gladys and Jimmie, that I have told you about, were also picking up potatoes. Jimmie is seven, and Gladys is not quite five. It was between ten and eleven in the forenoon, and these two little chicks had actually picked up 50 bushels of Carman potatoes. Their mother offered them a cent a bushel. Some of the potatoes were so large that Gladys would almost need both her little hands to lift them into the potato-boxes.

Now, friends, please do not rush to the idea that any of you can go up there and grow 300 bushels of Carman potatoes per acre, and sell them for 45 cents per bushel. That would be $135 per acre in one season. The potatoes were also fine and large. There were not enough seconds to be worth mentioning. I think any dealer would take the pile just as I saw it dug, without throwing out a potato. I will tell you why you can not duplicate the above. Mr. Hilbert is one of the oldest and most successful farmers in that region. His fields where he raised these great crops have grown clover which has been turned under until the whole ground is a mass of fertility, and a part of the field was where he had some of his great crops of berries a year or two ago. The vines were so strong and rank that they had to be pulled out of the way by hand before the potatoes could be dug. Holly told me they grew so rank that the bugs bothered them hardly at all. The only fault that could be found with that crop of potatoes was that they were *too* large. I told Holly he should plant them close enough so as to make them smaller. He said he was going to plant only Carman No. 3 on his farm next year, and that, furthermore, he would crowd them so close together there would *have* to be some small ones. In fact, he said he feared they would not have enough small potatoes for their own planting. Oh dear me! I wish I could tell you of some similar crops in the way of yield around our cabin in the woods. One trouble is, I tried growing potatoes two years in succession on the same ground. The bugs were bad, and I was not there to look after them, and the blight was bad. A near neighbor who used the Bordeaux mixture faithfully, mixing his Paris green with it, escaped the blight, while mine went down perhaps when they were half grown. My Carmans and King of Michigan did the best of any of them. A few Six Weeks potatoes that were planted early in April made a splendid yield of beautiful nice tubers. They ripened up before the bugs and blight got around. My main crop was planted, contrary to friend Hilbert's advice, about the middle of May. Mr. Hilbert's great crop was planted about the middle of June. Probably this made a great difference.

The new kinds that I tested from the Ohio Experiment Station all suffered more or less. They were planted about the middle of May. Baker's Extra Early is a very nice potato, but it looks so much like Six Weeks I can hardly tell them apart. They are both a variety of the Early Ohio — at least I should call them so. They look very much like the Early Ohio, and ripen about the same time. Admiral Dewey was reported in a potato number of the *Practical Farmer* by quite a number of persons as being one of the very best early potatoes. It very much resembles Carman No. 3. Early Fortune gave a great yield at the Experiment Station, and a fair yield with us. It very much resembles a long Early Ohio. Early Norwood is also a large yielder, with not much tendency to blight; also after the style of the Early Ohio. Quick Crop is another one that I could hardly tell from the Early Ohio in color, shape, or time of ripening. Northern Beauty much resembles the Early Rose. It gave the largest yield of any potato tested at our Experiment Station. Hammond's Sensation, for which much has been claimed, especially in regard to being a handsome potato, gave a very moderate yield, and did not compare in looks with the Freeman or Carman No. 3; and, like most of the above earlies, it seemed to be so nearly like the Early Ohio that I could hardly tell one from the other. It, however, resembles the long Early Ohio instead of the variety that is round like the Triumph.

In regard to our old varieties, Red Bliss, like Six Weeks, gives a very good crop when planted in the fore part of April. Early Trumbull probably gave the best yield of any of the earlies when planted in the middle of May. Bovee gave a good yield, with a quality superior to the average early potato. New Queen gave a fine crop, even though planted on the same ground that bore a heavy crop the year before. Freeman gave us a fair crop of extra-nice handsome potatoes as usual. Lee's Favorite gave perhaps the best yield of all, and the quality is equal to any; but there are a good many crooked and prongy potatoes, and the deep eyes are an objection for table use. State of Maine, Carman No. 3, and King of Michigan all did well.

After our potatoes were all dug and shipped back to Ohio we had some more hard work in taking care of a crop of five acres of Japanese buckwheat. I think I never got so tired before in my life—that is, in any kind of farmwork—as I did in tying up that buckwheat. As I never learned the trick of tying up bundles by making a band of the straw, I got along faster by using twine — the same kind we use for tying up bags. Of course, the modern way is to harvest buckwheat with appropriate machinery. We did not have the machinery, and so we had to do it the old-fashioned way; and the old-fashioned way gave health and strength, and its attendant happiness and contentment.* I very much fear that, with our modern machinery, and our modern way of living, we are going to lose the health, strength, and enjoyment that our forefathers had. In fact, I am told already that employers in our great cities are obliged to go back into the country constantly to get boys and girls who amount to any thing. Those brought up in the cities are "no good." As for me, I do not know but I shall all my life prefer the "cabin in the woods," with its good old-fashioned ways, with health, strength, and happiness thrown in.

OUR ADVERTISERS.

HATCHING THE EARLY BIRD; A YEARLY IMPROVEMENT IN PRICE AND MARKET FOR EARLY SPRING BROILERS.

It is coming to be more the case with each succeeding year that the cream of poultry profit is obtained by hatching, raising, and sending to market the chickens that have come to be commercially known as "broilers." This term includes, in a general way, birds that weigh from 1 to 2¼ pounds at an age of from two to four months. Of course, the highest prices are obtained during the early part of the season, say from March to May. For this reason fully 90 per cent of poultrymen use the incubator exclusively, as it enables

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*Perhaps I should mention right here that T. B. Terry has been giving us, through the *Practical Farmer*, some good talks on the importance of outdoor air, day and night; and he is coming down strong on the modern ways of heating — such as steam and hot water in place of open grates. Nothing can insure plenty of outdoor air like the old-fashioned stove with its big open fireplace or grate. Well, that cabin in the woods is warmed with a drum stove that draws like a little steam engine; and pure air comes through the cracks in the floor. We have not put in a tight floor, because we are contemplating a good house or a little cottage, tight enough so the mice can not get in. Mrs. Root can not stand a house where mice have access. You may think our cabin a pretty cold place to sleep in during October nights, but, wait a minute. That drum stove will take a log of wood two feet long and eleven inches in diameter. We cut down a tree and saw it up into blocks like the above. When they are thoroughly seasoned they are kept in a nice little wood-house. One of these blocks holds fire all night, and keeps the cabin quite comfortable, especially with lots of woolen blankets. So we have been living up there in the woods very much as the patients do at the modern sanitariums, where they keep them outdoors, practically, day and night, summer and winter. You see I have been getting all this health and strength and happiness by taking God's medicine; and he has prescribed it in answer to my repeated prayers of many years. Blessed be his holy name! When sugar making time comes we expect to go back again to the cabin in the woods.

them to regulate the season and number of the hatch with entire independence of the hen, which need only furnish the eggs.

In the matter of incubators they have been brought to a point where they actually beat the hen at her own game. Manufacturers have closely studied the natural laws of incubation, and followed them minutely. In the machines made by George H Stahl, of Quincy, Ill., known as the Excelsior and the "Wooden Hen," every problem of heat, moisture, and ventilation has been solved, and it is said they will hatch a greater percentage of hatchable eggs than the mother hen herself under ordinary conditions. Five minutes' daily attention when in operation is all they require Every one interested in poultry should write George H Stahl, Quincy, Ill, for his free catalog of Incubators and Poultry Appliances. It is worth having.

Cut green bone is a necessity of the poultryman who wants to make money It is not a luxury which the hen, with a little privation, can do without—it is something that she must have if we expect her to do her best. When we keep a flock to make money out of them, we must feed them right. A good record for eggs depends chiefly on the feed. A wild fowl does not lay more than a dozen or two eggs in a year, but we expect the domestic hen to lay twelve to fifteen dozen, and we can not get this for nothing. We must feed her just what she needs. The hen needs certain elements which we can give her in cut bone at less cost than in any other feed.

The only practical question is — how to provide the bone, and the logical answer is get a green-bone cutter. Save the bones from the table and cut them up yourself; and if this is not enough, call at the nearest meat market, where they will be glad to give you at a nominal price all the fresh bones you can use. If you are a regular customer they may not charge you anything, especially if it is a store that buys your eggs.

All grains contain bone substance, but not enough; and if hens have to depend on grain for bone material, they eat more than they need to supply them with other things. When you supply them with good fresh bone they do not need so much grain, and they will lay more eggs. Every extra egg after the hen's board is paid adds just so much to the profits — makes her just that much more of a success.

The catalogue of the "Dandy" bone-cutter, made by the Stratton Mfg. Co, Erie, Pa., is really a valuable book of hints on feeding poultry, and is sent free if you mention GLEANINGS IN BEE CULTURE.

CONVENTION NOTICES.

The twenty-fourth annual meeting of the Colorado State Bee-keepers' Association will be held in Chamber of Commence Hall, Denver, Colorado, Nov. 23, 24, and 25. An unusually fine program has been prepared. One of the interesting features will be a display of Colorado-made bee supplies An earnest and cordial invitation is extended to all bee-keepers to be present. H. C. MOREHOUSE, Sec'y.
Boulder, Colo.

The Missouri State Bee-keepers' Association will meet in Mexico, Mo., Dec. 15 1903. Mr. J. W. Rouse, of that place, will act as host to direct the attendants to the hall, which is free to all who desire to attend. Board can be had at the leading hotels at $1.00 to $2 00 a day. Come, everybody who is interested in bees and honey. Let us have a big meeting We now have 51 paid up members. Let us have it 100. Procure certificates from your local railroad ticket agents when you purchase your tickets. It may be you can return for one third fare W. T. CARY, Sec.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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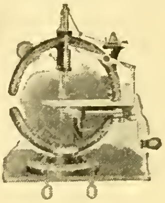
WASN'T IT LUCKY THAT

the runaway auto at Zanesville, O., fair, ran into Page Fence? It had already counted over a score of killed or injured before it struck the fence.

Page Woven Wire Fence Co., Box S. Adrian, Michigan.



A Sewing-Machine for $2.50.

The Pony. Absolutely perfect work, making regular Wilcox & Gibbs chain stitch. Will do all kinds of plain family sewing. Especially adapted for travelers. And, how it will please the little girls to find one Christmas! How they will work on Dolly's clothes! Sent complete with extra needle for only . . . **$2.50;** or mailed to any U.S. address for $2.85. F. J. Root, 90 W. Broadway, New York.

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Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,
Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

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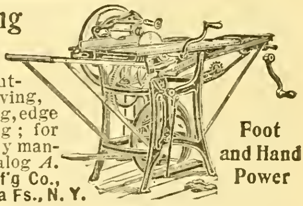

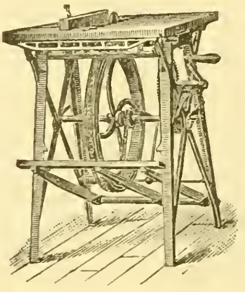

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Machines on Trial.
Send for illustrated catalog and prices. Address
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get strong and healthy—gain steadily in weight, are chicks hatched in Reliable Incubators.

The Reliable

provides automatically a constant current of odorless, warm air at a uniform temperature—chicks pip, hatch and thrive under its nature-like conditions. Send 10 cents and get our 20th annual catalog—full of poultry information.

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$1.00; select, $1.25.

Address J. B. CASE, Port Orange, Florida.

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Two hundred of these queens I wish to close out this season; the other 1000 I will reserve for early queens for next season. As long as they last, I will fill from the 200 queens at the following reasonable prices.

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Remember ——

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Send me your address on a postal card for one of my 1904 price-lists, beautifully illustrated, as follows: A swarm of Victor's Long Tongue clover-stock Italian bees on his naked arm. How a queen should lay. This is a most beautiful frame of brood solidly sealed; and other beautiful illustrations fully described.

Be sure to ask for one of my 1904 Price Lists.

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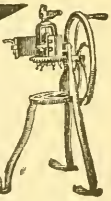

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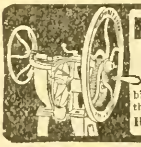

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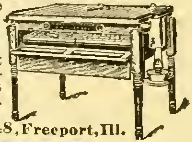

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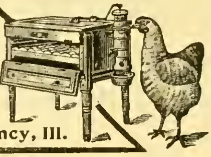

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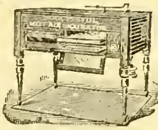

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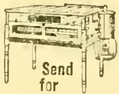

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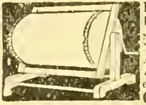

kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes. Pays for itself first season. Also *Lightning Lice Killing Powder, Poultry Bits, Lice Murder, etc.* We secure special low express rates. Catalog mailed free. Write for it.

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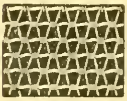

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PEACH Grand lot of trees, grown on the bank of Lake Erie, more stocky and hardy than trees grown in the interior; two miles from any peach orchards and free from borers and all other diseases. Large stock of fruit trees and small fruits of all kinds. Headquarters for

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40 Acres Hardy Roses, including 45,000 of the famous Crimson Rambler. 44 greenhouses filled with Palms, Ficus, Ferns, Pandanus, Roses, etc. Correspondence solicited. Catalogue Free.

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After a man succeeds in publishing a good journal, the next step is that of getting it into the hands of the people, of getting them to reading it, and becoming acquainted with its merits. This can be done by advertising, sending out sample copies, circulars, etc. All this costs money. I think I am safe in saying that every new subscriber I have received, I have paid out $2.00 in advertising; hence I have often said that a publisher of a good journal could afford to send his paper one year free, for the sake of getting it into new hands. It would cost no more than other forms of advertising, and would be very effective, but, for obvious reasons, this plan could not be put into practice, but I am going to come as near to it as I can. I have between 200 and 300 complete sets of back numbers for the present year; and as long as the supply holds out I will send a complete set, and the rest of this year free, to any one who will send me $1.00 for the Review for 1904. For a few particulars regarding the numbers already published this year, read the following:

REVIEW FOR 1903.

January illustrates and describes a Queen Incubator and Brooder which allows the bees access to the cells and queens at all times. It also contains several excellent articles on the subject of Commercial Organization among bee-keepers.

February contains a five-page article, perhaps the best ever published, on foul brood. It tells how to detect the disease with unerring certainty, to prevent its spread in the apiary, to keep it under control, build up the diseased colonies, secure a good crop of honey, and at the same time securely rid the apiary of the pest, all in one season, with almost no loss.

March gives the portrait of a veteran bee-keeper of Michigan who manages out-apiaries 50 miles from home with only four visits a year, averaging a profit of $150 each visit. He describes his methods in this issue of the Review.

April has a frontispiece of bronze blue showing Mr. T F Bingham's apiary and wintering cellar, and Mr Bingham describes the cellar and its very successful management. L. Stachelhausen tells how to prevent both natural swarming and increase in an out-apiary, and secure a fine crop of honey.

May illustrates and describes a tank and method for fumigating foul-broody combs with formalin. This is the largest tank, and most extensive, successful experiment that has been made.

June illustrates and describes the use of the cheapest power for hive-making, wood-sawing, feed-grinding, water-pumping, etc.—a power windmill.

July has articles from such men as R. L. Taylor and H. R. Boardman on "End of the Season Problems," those problems that come up just as the honey harvest is closing and preparations for winter come on apace. Mr. McEvoy also tells how to treat foul brood after the honey harvest is over.

September has an article from Mr. H. R Boardman, in which he describes his wintering cellar above ground, and tells how he succeeds in controlling the temperature and ventilation—sometimes using artificial heat. R L. Taylor contributes an article on "Commercial Organization Among Bee-keepers," in which he states the case so clearly that no more argument is needed.

October is pretty nearly taken up with only two articles. The first is by R. L. Taylor on "The Cellar-wintering of Bees." It is an old subject, but Mr. Taylor has the faculty of saying new things on old subjects. He covers the ground very completely, and gives many a useful hint to the man who winters his bees in the cellar. The other article is by the Editor, in which he writes of California as a bee-keeping State, giving eight beautiful illustrations made from photos taken by himself when on his recent visit to California. Several of these are full page.

November or December will be a special number in which the editor will describe that paradise for bee-keepers, Northern Michigan using a large number of cuts made from photos that he took last summer while on an extended visit to that region.

Perhaps you may have intended subscribing at the beginning of the year—subscribe now and you will get the back numbers—wait until January and it is not likely you will get them.

SUPERIOR STOCK.

The price of a queen alone is $1.50, but I sell one queen and the Review for one year for only $2 00. Just at present, as explained above, as long as the supply of back numbers for 1903 holds out, all new subscribers for 1904 will receive them free. In other words, if you order soon you can get the Review for 1903 and 1904 and a queen of the Superior Stock next Spring, for only $2.00.

W. Z. Hutchinson, Flint, Mich.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
J. T. CALVERT, Bus. Mgr.
A. L. BOYDEN, Sec.

TERMS. $1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, *in advance;* or two copies to one address, $1.50; three copies, $2.00; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

The National Bee-Keepers' Association.

Objects of The Association:

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

Officers:

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J. U. HARRIS, Grand Junction, Col., Vice president.
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Special Notices by A. I. Root.

THE CROWN THAT IS JUST OVER OUR HEADS, AND WITHIN OUR REACH.

When I spoke about my Bible-reading, on page 969, I had lost my list of references Since then it has unexpectedly come to light, and I submit here the readings for those who may care to know what the Bible says of Bunyan's figure of the man with the rake:

I. Cor 9:25; II Tim. 4:7; James 1:12; I. Peter 5:2—4; Rev 2:7, 10, 26; Rev. 3:5, 12, 21.

It will be noticed the passages from Revelation do not all refer to the crown, but they speak of the promise "to him that overcometh."

WANTED—SEED OF THE CALIFORNIA SAGE.

If any of the friends in California can furnish us a pound or two, or even less, of either the white or black sage that bears honey in California we shall be very glad to get it. If you can not get us a pound, send us an ounce of one or both kinds, and we will try to pay you for your time and trouble.

DAVIS WAX BEANS, ETC.

Last season we at one time paid $6.50 a bushel for Davis wax beans to fill orders. About this time I discovered many of our potatoes were not coming up, in consequence of the protracted cold wet weather just about the time they were planted. In about two hours one of our boys with a hand planter put a hill of beans wherever a hill of potatoes was missing. Well, I pulled and dried and thrashed them all, and got about four bushels of nice beans. I thought best to mention it for fear some of the friends might think I am not much of a farmer after all, if it took me three weeks to harvest two acres of potatoes and five acres of buckwheat, even if I did have to do it almost alone. I do not know now what wax beans are going to be worth for seed for next year. Of course, they were cultivated when we cultivated the potatoes; but we could just as well cultivate some hills of beans as to keep cultivating all through the season around "nothing at all."

SEED POTATOES FOR 1904.

Instead of having 1000 bushels to sell, as I had a year ago, I have scarcely 100. I have not seen any other prices quoted by any other seedsman; but there will probably not be very much variation from the prices given below, the same as we started out with last year:

TABLE OF PRICES.

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	Half Peck.	Peck.	Half Bushel.	Bushel.	Barrel, 11 pks.
Red Bliss Triumph......	$ 18	$ 40	$ 30	$ 40	$ 75	$1.25	$3.00
Six Weeks...............	18	40	30	40	75	1.25	3.00
Early Michigan.........	18	40	30	40	75	1.25	3.00
Early Trumbull..........	18	40	30	40	75	1.25	3.00
Bovee.....................	18	40	30	40	75	1.25	3.00
New Queen...............	18	40	30	40	75	1.25	3.00
Freeman..................	18	40	30	40	75	1.25	3.00
Lee's Favorite............	18	40	30	40	75	1.25	3.00
Twentieth Century......	15	35	20	35	60	1.00	2.50
State of Maine...........	15	35	20	35	60	1.00	2.50
Carman No. 3............	15	35	20	35	60	1.00	2.50
King of Michigan......	25	50	35	50	85	1.50	3.50
California Russet.......	15	35	20	35	60	1.00	2.50
New Craig...............	15	35	20	35	60	1.00	2.50
Whitton's White Mam..	15	35	20	35	60	1.00	2.50

Seconds, while we have them, will be half price.

A barrel can be made up of as many varieties as you choose, and they will be at barrel prices if you have a whole barrel or more

In addition to the kinds mentioned in the table, I planted as a test one peck each of several varieties all highly recommended by our Ohio Experiment Station. They are mostly early or extra early. The prices will be the same as the earlies in the table. They are as follows: Admiral Dewey, Early Norwood, Early Fortune, Hammond's Sensation, Imes' Blight-proof Early Ohio, Baker's Extra Early Quick Crop, and Northern Beauty. This last gave the highest yield (321 bushels per acre) of any potato early or late, tested at the Ohio Experiment Station.

We hardly think it safe to ship potatoes after the first of December unless they are going somewhere south. In fact, we have successfully shipped potatoes all winter for many years past to the Southern States by packing them in dry sawdust and lining the barrels with heavy paper. We can ship as above, or we will keep them safely in our potato-cellars until next April, or later if you prefer. As our crop is very limited this year, if you want any of the above varities you had better send in your order at once.

THE SEED AND PLANT BUSINESS OF THE A. I. ROOT CO.

After having sold vegetable seeds and plants for almost twenty years, I reluctantly announce that I am about to give it up. In fact, our seed department has already been sold to E. C. Green & Son, of this place. Many of you are somewhat acquainted with Mr. Green from his writings in GLEANINGS and other agricultural papers. He was for many years connected with the Ohio Experiment Station, and had charge of the department for testing new vegetables. He is also the originator of Burpee's tomato, Fordhook Fancy; also several varieties that are offered by Livingston. In fact, he has all his life been connected more or less with originating new plants and vegetables. The son is now in our employ, where he can have daily consultation with me in regard to getting hold of the minutiæ of our seed business. I confess it makes me feel sad, however, to think of dropping the very pleasant acquaintance of those who have for years past entrusted us with their orders for seeds; but with the recent enlarging and development of our apiarian business we have found it absolutely necessary to drop all side issues. We shall still hold on to seed potatoes and the seed business of all honey-plants and every thing pertaining to the production of honey; and I hope to have a nice garden to show our friends, where they can see all the new and old honey-plants growing I also expect to visit greenhouses and gardens, and to continue to write up "High-pressure Gardening," and other gardening and fruit-growing, with other rural industries more or less connected with bee-keeping.

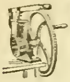
Permit me to add that, before this step was decided on, quite a lot of garden-seeds were grown expressly for us. By having them grown to order we are sure they are not only fresh, and true to name, but we are enabled to give very much lower prices than where we are compelled to buy our seeds from some other party. Our successors, E C. Green & Son, will have all of these specially grown seeds. Those who have purchased them from us during the past two or three years know how well they have turned out.

Just as we go to press we have received news that the National Association won its suit in San Antonio, Texas. Particulars will be given later.

FIVE-ACRE IRRIGATED TRACTS.

Four acres of it set to **Alfalfa, Fruit-trees, or Grapes,** cultivated, fenced, and attended to by us. All for **$3 per week for 5 years** ($780), **less value of crops.** Best climate. Best soil. Best markets in U. S. Full particulars on application.

OREGON LAND & WATER CO.,
Umatilla, Oregon.



THE CROWN Bone Cutter for cutting *green bones.* For the poultryman. Best in the world. *Lowest in price.* Send for circular and testimonials Wilson Bros., Easton, Pa.

20 THOROUGHBRED MINORCA COCKERELS. Fine. Price 75c to $1.00 Worth $2.00 each.
G. Routzahn, Biglerville, Pa.

FOR SALE.—Clover or buckwheat extracted honey, in 165-lb. kegs. Write for prices. Sample, 8c.
C. B. HOWARD, Romulus, N. Y.

FOR SALE.—1000 lbs. No. 1 white comb, at 14c, and 2000 lbs. No. 1 extracted, at 7½c. W. D SOPER, Route 3, Jackson, Mich.

FOR SALE.—Comb and extracted honey, buckwheat and amber. Write for prices. N. L. STEVENS, Route 6, Moravia, N. Y.

FOR SALE.—6000 lbs. choice ripe clover honey, new; 60-lb. cans. ELIAS FOX, Hillsboro. Wis.

FOR SALE.— Fancy basswood and white-clover honey; 60 lb cans, 8c; 2 cans or more, 7¾c; bbls., 7½c.
E R. PAHL & Co., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fancy and A No 1 comb honey from alfalfa, in Danzenbaker 4 x 5 sections. Write for prices. WM. MORRIS, Route 1, Las Animas, Col.

FOR SALE.—White-clover extracted honey in 60-lb. cans, at 7½ cts. One can, 8 cts. No local checks received. DR. C. L PARKER, Sta. A, Syracuse, N. Y.

FOR SALE.—Extra fine white clover honey, both comb and extracted. Write for special price
JOHN A. THORNTON, Rt. 1, Ursa, Ill.

FOR SALE.—Five cases extracted honey at $8.40 per case. M. ISBELL, Norwich, N. Y.

Wants and Exchange.

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED —To sell strawberry-plants. Catalog free. NORTH STAR PLANT FARM, Cokato, Minn.

WANTED.—To sell 75 colonies bees in good shape; will sell cheap. G P. COOPER, Pikeville, Tenn.

WANTED. To sell choice alfalfa honey, in 60-lb. cans. Prices quoted on application.
W. P. MORLEY, Las Animas, Col.

WANTED.—You to read the adv't of ginseng on page 781, Sept. 1. For prices address
A. P. YOUNG, Cave City, Ky.

WANTED.—Position by up-to-date apiarist, south preferred. R J. SMITH,
Street Road, Essex Co., N. Y.

WANTED.—A few thousand *basswood-trees* and basswood seed. Send lowest cash prices.
OREGON LAND AND WATER CO., Umatilla, Oregon.

WANTED.—Names and addresses of those who want good books or sheet music. Ask for prices on what you want. M. T. WRIGHT, Medina, Ohio

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass

WANTED.– To buy quantity lots of choice white-clover comb and extracted honey. Price must be low. B. WALKER, Clyde, Ill.

WANTED.—The address of all who are still in need of cartons. QUIRIN THE-QUEEN BREEDER,
Parkertown, Ohio.

WANTED.—To sell 15,000 lbs. best white-clover extracted honey in 60-lb. cans, at 8½ cts. per lb.
WALTER S. POUDER,
512 Mass. Ave., Indianapolis, Ind.

WANTED.—To exchange a two hundred-egg Reliable incubator, been used very little, for choice comb or extracted honey. CHAS. KOEPPEN,
Fredericksburg, Va.

WANTED.—Bee keepers to try our printing. 100 envelopes, note-heads, or statements 40c; 250, $1.00. All postpaid. Can use queens and berry-plants in exchange. M. T YOUNG, Girard, Pa.

WANTED.—To sell Angora kittens; perfect pets and beauties, 4 to 6 months old; colors, black, blue, orange, and gray. Prices: Males, $5.00; females, $4.00; pairs, $8.00. Early orders secure best selection.
J. W. DEANE, Maple Hill Farm, Freedom, Me.

WANTED.—To sell best type-writer for bee-keepers; practical, handy, low-priced. For exchange, Mann green-bone mill, good as new, cost $16.00 Want 8-frame L. or Dovetailed hives or extracting supers for same; extracting-combs from healthy apiary; double shotgun, 16 gauge. HARRY LATHROP, Monroe, Wis.

WANTED.—To sell 150 shallow extracting-frames, mostly filled with comb; one Wilson's Daisy (hand or power) green-bone cutter; one one-horse power speed-jack, tumbling-rods, knuckles, belting, all complete; $25 takes the outfit; one Odell typewriter, little used, good as new, $10. Wanted, Vol. I. of Hoone's "Introduction to the Critical Study of the Holy Scriptures;" odd volumes of the "Practical Works and Sermons" of the Rev. Ralph Erskine, A. M.; back volumes of Zion's Watch Tower, 1879 to 1891.
Address WM. FINDLAY, Basco, Ill.

WANTED.—To sell machinery for bee-hive factory, consisting of 10 h. p horizontal boiler and 8 h. p. engine combined on skids. Four-piece section planer saw, capacity 150 to 180 pieces per minute; dovetailing table, rip saw table, cut off table, turning-lathe, all of heavy maple frames; 22-in. surface-planer, 45 ft. turned 2 in. shaft, hangers pulleys, and belts, complete, cost $850.00. All in good order, and been used but little. Will take $450.00 (engine cost $400.00) to make quick sale, as our truck farm takes all our time. Write for full particulars. F. & H. P. LANGDON,
Maple Ridge Farm, Constable, N. Y.

PAGE & LYON,
New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .

BEE-KEEPERS'
SUPPLIES. . . .

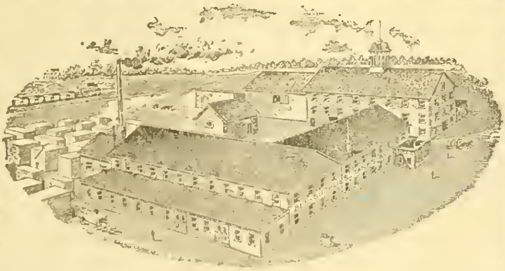
Send for Our Free New Illustrated
Catalog and Price List. . . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



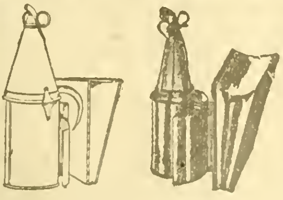
Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE-SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb. .
Shugart & Ouren, Council Bluffs, Iowa,
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

SPECIAL NOTICE

Special Notices
By Our Business Manager.

WEED FOUNDATION MACHINERY IN DENVER.

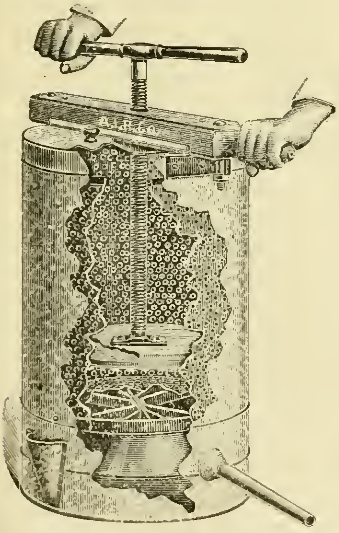
We have placed an outfit of Weed machinery for the manufacture of comb foundation with Henry F. Hagen, of Denver, Colo., and the foreman of our wax-room is now in Denver instructing Mr. Hagen in the operation of the machines. We commend Mr. Hagen to the bee-keepers and dealers in Colorado and vicinity, as he is in position to furnish them with foundation made by the Weed process. Mr. Hagen formerly kept bees in Rocky Ford, Colo., and handled supplies at that point to the extent of five carloads in one season. Having known him for years we can recommend him as reliable.

TOBACCO DUST.

We have some ten barrels of tobacco dust made from ground stems as well as sweepings not so strong as the regular dust we have handled, but which will make an excellent fertilizer as well as insect destroyer in greenhouse work. It will have to be used more liberally than the regular dust to be effective. There is about 200 lbs. to a barrel. We offer it at $2.00 a barrel to move it. This is about half to two-thirds the regular price, and it should be well worth this price.

THE ROOT-GERMAN STEAM WAX-PRESS.

Many bee-keepers allow old combs and scraps of beeswax to collect, which, for lack of time and the proper utensils, are scattered or eaten up by moth-worms. A big item would be added to the year's profits by the timely rendering of said wax by an economical process. We believe the press illustrated below fills a long-felt want in rendering wax.



Our German machine is patterned after some of the best steam-extractors that have been used across the water, using the best features of all of them. Price $14.00.

CONVENTION NOTICES.

The Minnesota Bee-keepers' Association will hold its annual meeting in Minneapolis, Dec. 2 and 3, at the First Unitarian Church, corner of Eighth St. and Mary Place midway between Hennepin and Nicollet Aves. Go in on the Mary Place side. Procure certificates from your local railroad agents when you purchase tickets, and those living in Minnesota can return for one-third fare; and we hope to secure the same for those living in Wisconsin, Iowa, and the Dakotas.

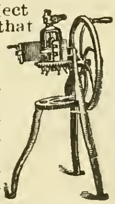
L. D. LEONARD, Sec'y.

The Fulton and Montgomery Co. Bee-keepers' Society will meet at the Central Hotel, Market St., Amsterdam, Dec. 22, at 10 A.M. This will be the regular business meeting of the society for electing officers, payment of annual dues, and other business that may come up. Annual dues $1.00, which also includes a membership in the National Association.

West Galway, N. Y. T. I. DUGDALE, Sec'y.

Free to Our Readers.

For many years we have advocated the use of cut green bone for poultry. To spread information on this subject we have arranged with the manufacturers of the Latest Model bone cutter to send their new book, "The Paying Hen," free to inquirers who mention this paper. It's full of practical information on the subject. The manufacturers also write us that they will send one of their Latest Model bone cutters for ten days free trial, with a guarantee that it does better work and does it easier and faster than any other bone cutter. If you are not satisfied you may return it at their expense. The machine is a good one—easy-running and durable; it is used all over the world and the latest model embodies many improvements which add greatly to its convenience and ease of operation. Write to F. W. Mann & Co., Box 37, Milford, Mass.; tell them you are one of our readers and the book will reach you in a few days.



MYERS
Glass
Valve

SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

Double-acting, Lift, Tank and Spray PUMPS

Store Ladders, Etc.

HAY TOOLS of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, - Ohio.

FOR SALE.—20,000 lbs. white alfalfa honey, in 60-lb. cans, at 6c, f. o. b.
GEO. D. MITCHELL, 329 Wash Ave., Ogden, Utah.

SLOE PLUMS

For description see Gleanings of Nov. 1, page 936. We can furnish trees or grafting-wood for spring delivery. If interested, write for description of varieties and prices.

E. C. GREEN & SON, = Medina, Ohio.

Reduce Your Living Expenses 25 Per Cent.

It will be worth hundreds of dollars to you to carefully read and study this advertisement.

CASH BUYERS UNION
MAIL ORDER HOUSE
EVERYTHING AT REGULAR DIRECT FACTORY PRICES
ESTABLISHED 1885
FIRST NATIONAL CO-OPERATIVE SOCIETY

Request for Prospectus.

Gentlemen:—Please send your complete "Book of Information" and all literature pertaining to the profit-sharing stock of your company to

NAME ______

P.O. ______

STREET ______ STATE ______

It is understood that above will be sent to me free of all charges and that I am under no obligation whatsoever to subscribe.

Co=Operation

DOES reduce the cost of living; practical co-operation (as first introduced and successfully applied by us in America) is the solution of the problems of high prices and points the way to better living and cheaper living. **Already it is successful.**

The Co=Operative System

enables the consumers—the users of goods—to practically own their own store; to purchase all their requirements direct from the producers without the intervention of the endless chain of middlemen (wholesalers, jobbers, retailers, agents, etc.) each one of whom makes a profit on every transaction and thereby increases the prices to you. Through **Co=Operation** you avoid paying profits to any one; the savings effected flow back into your pocket in the shape of lower prices and handsome dividends from the general trade, divided among our shareholders.

We Have Several Thousand Shareholders

representing every state of the Union and nearly every civilized land; men and women from every walk of life—all enthusiastic with the practical results of co-operation.

We Want You to Join Us

and ask you to write for our complete "Book of Information" which we will send to any one free of all charges on request. The book sets forth our wonderful plan of doing business direct by mail **on the Co=Operative Plan** with over half a million customers throughout the world; shows how we save them from 25 to 40 per cent. on everything they eat, wear, and use; gives statistics showing that the famous co operative stores in England returned to their shareholders last year

40 Per Cent. in Dividends on Their Capital

besides saving them an enormous amount of money on their purchases, which aggregated $430,000,000. The book is a wonderful mine of business information, and is sent you free together with Bank and Mercantile references; a list of shareholders and scores of enthusiastic letters of endorsement from bankers, lawyers, manufacturers, merchants, mechanics, farmers, laborers, housewives, etc.

REFERENCES—Metropolitan Trust and Savings Bank, Chicago, Registrars; Messrs. Lord & Thomas, Advertising Agency; Dun s or Bradstreet's Mercantile Agency; any railroad or express company. The publishers of this or any newspaper or magazine. Any bank or reputable business house in Chicago.

Representatives Wanted. Write for Particulars.

Established 1885. Re-Chartered 1903.

Capital FIVE MILLION DOLLARS.

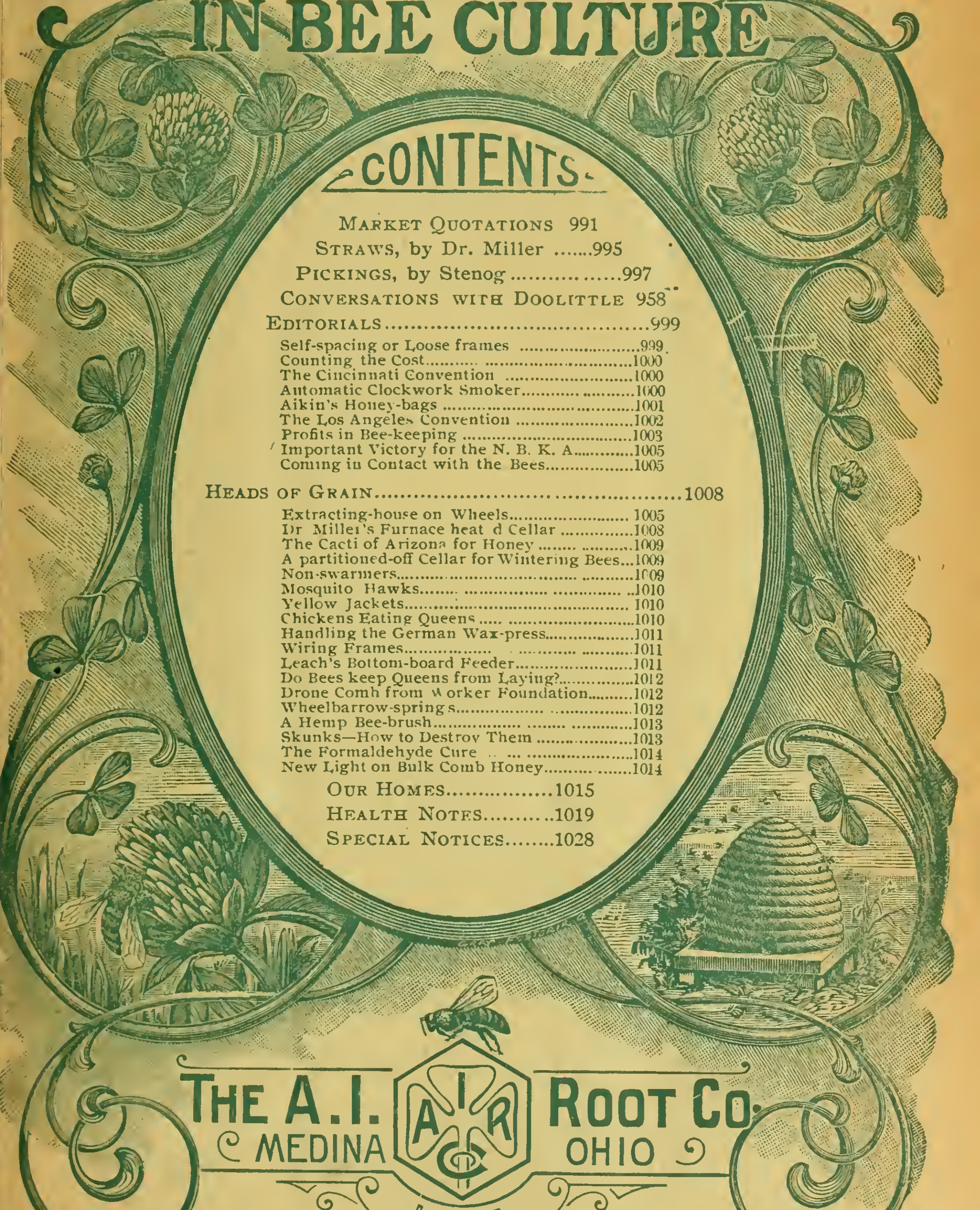
Nearly a Million Customers.

First National Co-Operative Society.

(Cash Buyers Union)
345 Cash Buyers Bld., Chicago, Ill

Volume XXXI DECEMBER 1 1903 Number 23

GLEANINGS IN BEE CULTURE



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U.S.A.

Eastern Edition.

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FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark that is, there will be "Fancy White," "No. 1 Dark," etc.

SAN ANTONIO.—I have now arranged to keep bulk, comb, and extracted honey in hot storage rooms all winter for prompt shipping, and should be pleased to have your business in the future. I handle only strictly first-class, white pure honey. I quote you for the next ten days, f. o. b. San Antonio, the following: Bulk comb honey, 60-lb. cans, 2 in case, 8-in. screw caps 9, 12-lb. friction-top pails, 10 in case, 9¾. 6-lb. friction top pails, 10 in case, 10½; 3-lb. friction-top pails, 20 in case, 11. Extracted honey, 1½c lower than the above prices. Terms, sight draft, bill-lading attached, subject to examination.

UDO TOEPPERWEIN,
Nov. 21. San Antonio, Texas.

MILWAUKEE.—Since our last report the receipts of honey have been liberal—rather accumulative—especially on comb, the demand has not been equal, and values are lower to sell. The increased supply is one factor to weaken values, and another is that some who have honey to sell make a lower market by offering to sell below quotations, which otherwise might be more easily maintained; and some deliver at a price made by buyers, which has a temporary depressing effect on market values. We lack for a consuming demand for the supply, and will quote as follows: Comb, fancy section, 13@15; No 1 sections, 12½@13; extracted, in barrels, old or damaged, nominal, 10@11; cans, kegs, pails, choice, well ripened, white, 7@8; cans, pails, choice, well ripened, dark or amber 6@7. Beeswax, 28@30.

A. V. BISHOP & CO.,
Nov. 23. 119 Buffalo St, Milwaukee, Wis.

CHICAGO.—Prices of honey are steady, but there is an absence of demand, which, if continued, may cause a lower range of prices. Fancy and No. 1 grades of white comb bring 13c; with less desirable grades, one to three cents lower. White extracted, 6@7½, according to kind, flavor, and package; amber, 5@6½. Beeswax 28@30.

R. A. BURNETT & CO.,
Nov. 21. 199 South Water St., Chicago, Ill.

TORONTO.—The prices of honey are about as follows: Fancy comb, $2 00 per dozen; A No. 1, $1.75 per dozen; No. 1, $1 50 per dozen; No. 2, $1.00 per dozen; extracted, white clover, and basswood, 5 and 10 lb. jars, 7½. extracted, white, 60-lb. cans, 6½@7.

M. MOYER,
Nov. 10. 408 Spadina Ave.

BUFFALO.—Comb honey is moving fairly well now. In quantity we have to shade quotations a little. Demand is for pure white honey with clear white comb. Comb that has a yellow shade sells for less price. Fancy white comb, 11½@15; A No 1 white comb, 14@11½, No 1 white comb, 13½@11; No. 2 white comb, 12@12½. No 3 white comb, 11@12; No. 1 buckwheat, 11½@12; No. 2 buckwheat, 10@11; white extracted, 6½@7; amber, 6@6½; dark, 5@5½. Beeswax, 28@30.

W. C TOWNSEND,
Nov. 12. 178 & 180 Perry St., Buffalo, N. Y.

SCHENECTADY.—The crop of honey seems to have been much larger than at first reported, and producers are now becoming anxious to dispose of their stock. There have been two or three carloads here from the west and our market is well supplied, and prices are easier. Fancy white, 15; No. 1, 14@14½, mixed, 13@13½, buckwheat, 12@13; extracted, light, 6½@7½; dark, 6@6½.

CHAS. MCCULLOCH,
Nov. 26. Schenectady, N. Y.

CINCINNATI.—The demand for comb honey is slower now than it was six weeks ago, owing to the enormous quantities offered on all sides. Fancy comb is sold in single case lots at 14. The supply of extracted honey is big, although the demand is good. We are selling amber extracted in barrels at 5¾@6½; white clover, in barrels and cans, 7½@8½, according to quality. Beeswax, 30.

THE FRED W. MUTH CO.,
Nov. 30. Front & Walnut, Cincinnati, Ohio.

SAN FRANCISCO.—Honey, new comb, white, 12@14; amber, 10@12; extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 30.

ERNEST B. SCHAEFFLE,
Nov. 12. Murphys, Cal.

ALBANY.—Heavy demand some easier as is usually the case as weather grows colder. We quote: Fancy, white comb, 15½@16; A No. 1, 15; No. 1, 14, mixed, 13@13½; buckwheat, 13@13½. We notice much improvement in the better shape honey receipts come in now since the handle racks or carriers are being used. Honey arrives in good order, and sells by the rack. Buyers buy more than by single case, as it is so convenient to handle. Like the now universal use of the standard pound sections, these improvements are a great benefit to the honey industry.

MACDOUGAL & CO.,
Nov. 27. 375 Broadway, Albany, N. Y.

BOSTON.—Western honey is arriving more freely in our State, causing a slight drop in prices. Fancy No. 1 in cartons brings 17; A No 1, 16; No. 1, 15; extracted white, 8½; light amber, 7@7½; amber, 6@7

BLAKE, SCOTT & LEE,
Nov. 25. Boston, Mass.

CINCINNATI.—The demand for honey is a little better. The prices rule about the same. Extracted, amber, in barrels 5¼@5½; in cans, about ½c more; water-white alfalfa, 6@½; white clover, 6¾@7½. The comb-honey market is quite lively, and sells as follows: Fancy water-white, 14@15. Beeswax is in good demand, and I will now pay 30 delivered here.

C. H. W. WEBER.
Nov. 24. 2146 Central Ave., Cincinnati, Ohio.

WANTED.—To sell 2000-lbs. pure white-clover extracted honey, in 60-lb. cans, at 7c per pound.

N. A. KNAPP, Rochester, O.

FOR SALE.—Amber honey, in bbls 6c lb; cans 7½c lb. up. Beeswax wanted, will pay highest market price I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—5000 lbs. of fine comb and extracted honey, mostly all comb.

L. WERNER,
Box 387. Edwardsville, Ill.

FOR SALE.—Three tons comb honey, in 4x5 sections, put up in glass-front cases.

J. I. CHENOWETH, Albia, Iowa.

FOR SALE.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.

EMIL J. BAXTER,
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FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,
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FOR SALE.—White clover extracted honey, guaranteed finest quality, at 8⅓ cts., in cases of one 58-lb can; at 9 cts. in cases of 12 5-lb friction top pails, and in cases of 24 2½-lb. friction-top cans. Fall amber honey at 7 cts. in 58-lb. cans. Samples, 10 cts. each.

R. & E. C. PORTER, Lewistown, Ill.

FOR SALE.—Clover or buckwheat extracted honey, in 165-lb. kegs. Write for prices. Sample 8c.

C. B. HOWARD, Romulus, N. Y.

FOR SALE.—1000 lbs. No. 1 white comb, at 11c, and 2000 lbs. No. 1 extracted, at 7½c.

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FOR SALE.—Comb and extracted honey, buckwheat and amber. Write for prices.

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Nickel Cap jar, fancy, $5.50 gross.

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AND

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In No-drip shipping cases. Also, Amber extracted, in barrels or cans. Quote your best price delivered Cincinnati.

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GLEANINGS IN BEE CULTURE

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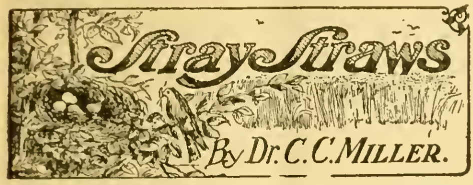


Stray Straws

By Dr. C. C. Miller.

Let me ask J. J. Burke whether that honey that soured, p. 967, was not extracted while yet too thin.

My hand is to my ear, listening to hear what Henry Alley calls back to Geo. W. Phillips after reading p. 959. [I made a similar remark after reading Mr. Phillips' article. "But," says Mr. P., "should I soft soap my article to such an extent that I would say what I do not believe?" "Why, no," said I.—Ed.]

Charles L. R. Barnhart shook swarms about May 10, and they swarmed a month later, p. 966. Exactly what I should expect in this locality after such early shaking. But was there not something abnormal to make general preparations for swarming so early as May 10, or is New York so much earlier than here?

Wm. Duncan put me on the track of tags for numbering hives that were just the thing—figures stamped in aluminum or other metal; but, alas! prices were prohibitory — 5 cents for a tag with two figures. Printed manilla tags have not proved satisfactory, and so far nothing seems better than tin tags hand-painted. [But don't you remember, doctor, that tin made by the modern process rusts very rapidly? Paint does not seem to protect it. What would be the matter with using zinc? There is a kind of scrap that we could use that would make this kind of tags; and they would last a lifetime, paint or no paint.—Ed.]

Plainly I see that I've been away from Medina too long. When I was there last, Stenog was a consistent prohibitionist — been at it for years — now he's been drinking tangle-foot, or rather tangle-tongue or tangle-pen — at any rate he's got things all tangled up on pages 913 and 953. From p. 953 one would get the impression that the English writer favored *pro* (it is plainly so stated p. 913), and I favored *prop*. Exactly the reverse is the case — the English writer said all the vowels should be short; and if I wrote at all what I thought, I wrote that the dictionaries preferred *pro*. How the Englishman could urge short *o* to keep in sight the original word *pro* is his funeral, not mine. [Doubtless either *pro*-nunciation is *prop*-er. The spelling is all I have to look after. The Englishman seems to use language to conceal ideas.—St.]

Last night, Bro. A. I., I read aloud Notes of Travel, p. 972, to an appreciative audience, and the question was then raised whether our Marengo climate mightn't do as well for you as Northern Michigan. You could bring Mrs. Root along with the cook-book she uses up in the woods. It would hardly do for you to wheel potatoes, for now in the middle of November we've had 10 to 12 above zero for several mornings; but we could have lots of fun wheeling one another. I could ride and you wheel till you got tired, and then you could wheel and I'd ride. [See answer to another Straw on the "comedy of errors."—Ed.]

Brother Doolittle has urged very emphatically the importance of knowing one's honey resources, and then having one's colonies strong only at the time when that strength is needed. While fully realizing the importance of thorough acquaintance as to honey resources, I never felt that I was smart enough, with conditions in my locality, to put in practice profitably the last part of the rule. I've always been too much of a coward, however, to come out plainly and say so; but now that my namesake, S. E. Miller, has boldly defined his position, in *Progressive*, I'm ready to get behind his broad shoulders so he may get the benefit of any stray brickbats that may be shied, and echo his sentiment: "The rule with me must be, *colonies always strong*."

Toronto, p. 947, seems to be falling in line with Colorado, quoting sections by the piece instead of by weight. Perhaps that's the right thing; at least, if it's right for the grocer to sell by the piece why shouldn't he buy by the piece? [Because there is no reason for selling by the piece. When he buys in bulk he can just as well buy by weight, and perhaps better; because if he bought his sections by the piece in the case he would have no means of knowing whether he is getting a uniform quantity, because most of the honey is covered from view. The consumer, when he buys his box of honey, sees the whole thing, inside and out. But in Colorado, honey is actually sold by the case. If you wish to buy at wholesale you ask what the price is, and you find it is so much per case. I could see no objection to that, providing we *knew* we were dealing with honest people, and there was a certain system of grading that was understood between the buyer and seller, as is the case in Colorado.—Ed.]

SPEAKING of errors, the editor says to me, p. 952, "But, say; once in a while we catch a slip in your copy, and fix it." Yes, that's just it; those GLEANINGS fellows have the whip-hand of me. There's that man Stenog. I have to depend on him to furnish semicolons and things to sprinkle into my copy wherever they belong, and on that account I don't dare to abuse him only about so much for fear that, if I stir him up too much, he'll print some of my stuff just as I send it in; and I don't dare to bear down too hard on that young upstart of an editor for fear when I write something that says just the opposite of what I mean he'll let it go in just as written, and not stop to "fix it." [Yes, in this batch of Straws, doctor, you have made another slip. Out of *pure revenge* I am going to let it stand just as it is, for revenge is sweet. I refer to that Straw in this issue where you are telling about letting A. I. R. push the wheelbarrow with you in it. At first I thought you meant it as a joke; but the preceding sentence is a disclaimer. If you had not put in the phrase, "wheeling one another," we should have thought it was the old case of the trapper and the Indian—"Here, Pete, *you* may have the hen and *I* will take the turkey; or *I* will take the turkey and *you* may have the hen.—Ed.]

MR. EDITOR, I note what you say about the Chicago market, p. 952. After giving full consideration to the pretty talk there, I have just one question for you. According to the quotations on page 907, for a 12-section case weighing 11 pounds I can get $1.54, and for a 12-section case weighing 12 pounds I can get $1.44. Now the question is this: If I can get $1.54 for one case, and will have to take 10 cents less for another case just as good, for no other reason than that it has a pound more honey in it, don't you think there are at least some signs of incipient decay? ["Scintilla" is a term used in legal parlance to designate the minutest of minute fragment of interest. Now, while I will admit there might be a scintilla of rottenness in Chicago, in the case you have mentioned, yet the rottenness of all depends on whether there is a deliberate *intent* to defraud. Trade conditions call for lighter packages, and from the producer's standpoint it is a difficult matter to get a 4¼×4¼ to average a full pound unless it is 1 15/16 or 2 inches thick. A thick comb is not as well ripened nor as quickly built. The tendency is toward a thinner comb, not because it cheats the consumer, but because it is more satisfactory to the bee-keeper. Is it not true that a thinner comb will have fewer uncapped cells? After all. the question hinges on whether the sections are sold by the weight or by the piece. If I sell you a piece of ground for $100, and there is no talk between us as to the *amount* of land in the piece, and no intention on my part to make you think there is a full acre when there is not, there is not even a scintilla of "rottenness."—Ed.]

MUCH TIME was taken up at Los Angeles discussing the use of the honey-knife, and whether hot or cold water should be used. T. F. Bingham tells in *American Bee Journal* how he uses the Bingham knife. He uses the ¼-inch bevel next the honey, and has a wooden pail or shallow pan filled with ordinarily cool water, into which he drops the knife whenever time permits. He advises never to use hot water, as the edge of the knife will be made thick with wax, and will not cut. [When in California I helped Mr. Mendleson uncap and extract both. He gave me, as I thought at the time, convincing proof that a honey-knife taken out of water a little more than lukewarm would shave the cappings cleaner and easier than when the knives were left all stuck up with thick honey. On the other hand, our Mr. Phillips, who has extracted many thousand pounds of honey in Jamaica, says he does not want any warm knife, if the edge is made with a file so as to be slightly rough so that the knife can be worked like a saw. I recall that in California the honey we were extracting was very, very thick. Warming the knife would thin the honey just enough so the blade would slide easily over the face of the comb. From the standpoint of the Californian, Mr. Bingham is both right and wrong. The probabilities are that the extracted-honey man will have to be governed by conditions.—Ed.]

A FRIEND whose modesty forbids mention of his name writes that he has succeeded in keeping extracted honey without granulating, merely by heating it. My first thought was, "Yes, that's old; heat it to about 160 degrees and seal it." But a second reading shows no mention of sealing, and he says he ran cappings through the solar, and the honey showed no signs of granulation after six months; but he doesn't know the exact degree of heat necessary. I suspect it's the *length* rather than the intensity of the heat that's important. Comb honey kept in a hot garret next the roof throughout the summer will not granulate for a year or more, as I reported years ago.

Why should it not work the same with extracted? I suspect that honey kept for six weeks where it would have the full benefit of the sun, as in a garret, would go a long time without granulating. Such honey ought to be very rich, and our friend's suggestion gives a clue to something worth trying. Later.—GLEANINGS, 908, confirms the above. [We have pretty good evidence from several reliable sources that honey kept in a warm place for a considerable time will resist granulation, without sealing. It is about time we were begining to recognize the fact that those of us who do a bottling business should, if possible, put our honey in a warm place for a month or more before bottling. Why couldn't we utilize our greenhouses or perhaps our house garrets in the summer time? If we haven't a greenhouse, wouldn't it be money in our pocket to buy a few sash and put our cans of extracted honey under them? The ground would warm up during the day so as to retain a great deal of heat during the night. —ED.]

Pickings from Our Neighbor's Fields
BY
"Stenog."

IRISH BEE JOURNAL.

This fine paper maintains its original interest, and is full of "snap and ginger" all through. In the November issue I find the following, presumably from the pen of the editor, Mr. J. G. Digges, and it is well worth reading, even if it does contain some old ideas.

> Put one pint of water in a saucepan or pot on the fire until the water becomes hot Then stir in 6 lbs. of pure refined cane sugar (lump or white crystals); dissolve the sugar before the water boils. Remember that, if you allow the sugar to burn, through lack of stirring it will never set. Burnt sugar is injurious to bees in winter time. When it boils, and begins to thicken, drop a little on a cold plate; and if this cools soft and sticky, so that you can with your fingers make it into a soft ball, it is right. If it is too soft, boil a little longer. Remove the pot from the fire and stir in a little more than half a tablespoonful of naphthol-beta solution. Place the pot in a vessel of cold water, and stir the contents during the cooling process. When the candy begins to turn white, and to set, pour it into saucers lined with paper. Let it remain for half an hour, then gently slip a cake under the sheet of each hive, so that the candy will be directly over the clustering bees. Renew the supply of candy as required. Pressure of the fingers on the sheet will show when the candy has been used.
>
> A neater plan for supplying the candy, and one that will repay the little extra trouble, where only a few hives have to be dealt with, may be adopted thus: Procure for each hive a small shallow box of wood or cardboard. Remove the lid, and cut in the bottom, a hole to correspond with the hole in the sheet that is on the frames Put a piece of newspaper over the hole in the bottom of the box, and fill up with candy. Now set an empty section-crate on the sheet that covers the frames. Pull the paper off the candy and set the box on the sheet, so that the bees may have access to the candy right over the cluster. Place a piece of glass on the box. Fill up the crate with warm stuff such as tailors' cuttings, cork dust, or chaff. Pack all around it with cloth or newspaper, and set the usual quilts on top Thus there will be no escape of heat The candy will be in the warmest part of the hive, and the glass will enable you to see when a further supply of food becomes necessary.

EL COLMENERO ESPAÑOL.

As a preface to his remarks on the general condition of bee-keeping throughout the world at the present time, the editor says:

> In order to form an approximate idea of the present state of apiculture throughout the world, it will be necessary to speak of but few countries; for to speak of all would be a wearisome task. However, it should be observed in general that in most countries not only individual persons, but different organizations, and, above all, governments, attach great importance to the development of bee keeping, and, in consequence, endeavor by all means in their reach to favor its propagation In some governing bodies the representatives engage with interest in measures for its extension, and for doing away with those causes which more or less injure its development.

The editor then casts a cursory glance at the United States as follows:

> This is, without any doubt, the nation that marches at the head of the apicultural movement of the entire world. It counts its bee-keepers by the hundreds of thousands, and among them a great number of the fair sex, who distinguish themselves by their special skill.
>
> This great people marching with gigantic steps at the head of humanity and which is to day the emporium of civilization and progress, can by no manner of means remain in the rear on apicultural questions
>
> The government, assisted by the several States has established many schools where technical and practical bee-keeping are studied.
>
> According to statistics, there are in the United States over 600 bee-keepers who have each above 500 colonies. Capt. J. E. Hetherington leads with about 3000 stands.
>
> The honey annually produced in the United States is estimated to be worth $18,000,000 Bee journals and associations are numerous; exhibits of honey are held every year.
>
> Among the many manufacturers of hives is The A. I. Root Co., employing about 200 hands.
>
> In short, the apicultural movement there is at high-water mark and no comparison can be made of that nation with any other. Old-fashioned hives are almost entirely unknown there.

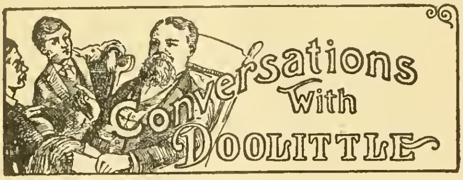
The situation in other countries will be considered in our next.

REVUE INTERNATIONALE.

The issue for October starts out by saying, "The readers of this journal are informed that it will cease to appear at the end of the current year. Its manager has carried the burden for 25 years, and is getting old. He feels that the time has come for him to retire and give place to younger ones." That removes a star of the first magnitude from the firmament, for Mr. Bertrand has been giving us not only one of the best-printed bee-journals in the whole world, but one of the best-edited ones as well. It is a pity the publication can not continue, even if the editor does retire. Mr. Charles Dadant, in the preface to his book, Langstroth Revised, French edition, has this to say of Mr. Bertrand from a literary standpoint:

> I owe him especially my most sincere thanks for not shrinking from the immense task of revising my manuscript for correcting it, and supervising its publication. If the reader finds any thing of interest in reading and studying this book, I hope he will render thanks to my friend Edouard Bertrand; for without

him and the disinterested assistance he has so generously afforded me, this publication would have been postponed indefinitely, not to say for ever.



WINTER PASSAGES IN COMBS NOT NECESSARY.

"Good evening, Mr. Doolittle. Came over this evening to have a little talk with you, as the days are getting so short that I did not want to hinder you during the daylight. What I wish to know is whether bees ever freeze or not."

"Of course, if a single bee is exposed to a freezing temperature, *that* bee freezes. What is there to hinder?"

"Well, that is not just what I wished to know. It is like this: This morning I found quite a few bees away from the main cluster, in my hives, dead, and a neighbor tells me that they were frozen to death. Was he right?"

"In reply to this question let me give you a little of my experience and observation during the past third of a century."

"That's right. That is just what I want you to do."

"As fall approaches, if we minutely examine a colony of bees we shall find that the activity manifested during the spring and summer in the interior of the hive becomes less and less, so that by the middle of October, in this latitude, all brood-rearing ceases, and the bees have become partially dormant; still, so far they have not packed themselves away for winter, in a snug cluster, or that compact shape in which we find them later on. Every opportunity given by a warm day is improved to void the fæces, so the bees may be prepared for a long cold spell when such occurs. As the weather grows colder, the bees contract their cluster, many packing themselves away in the cells till the smallest possible space is occupied by them, and thus the requisite warmth is secured to keep them alive when the mercury sinks below zero. In this contraction of bees, at certain times many of them are left singly, or in little clusters of from three, five, ten, or twenty-five, which do not recede with the main cluster, and thus are chilled where they are; and if the weather becomes cold enough they may be frozen, thus losing to the cluster that number of bees."

"That corresponds exactly with my neighbor's talk; and he said if I would make holes through the center of the combs in the fall, such would obviate this trouble. Is he right in this also?"

"In this part your neighbor is but reiterating the reason formerly given, which was, that, owing to the movable frames, no cross-sticks were used in these hives, as was the case with box hives, and hence the bees left no holes in the center of the combs as they did around the cross-sticks, this compelling the bees to pass over and around combs of cold honey to keep pace with the receding cluster, instead of passing through the center of the combs to the next range, which was more nearly filled with bees. In thus passing around, many became stiffened and were caught by the cold, which might have been saved if the holes had been provided in the center of the combs for them to pass through."

"Was not this a good argument?"

"It seemed so to many, and to this end some of the frame hives were provided with a thick shaving of wood, bent to form a circle about an inch in diameter, which was suspended from the top-bar by means of a little strip of tin, supposing that this would effectually secure a passageway for the bees."

"Did it not do the same?"

"It generally did during the first season when a new swarm was put in one of these hives; but only a short time elapsed before it became apparent that, during a good yield of honey, this shaving would be filled with comb and honey, and hence the passageways were cut off. Finding this to be the case, the practice of cutting holes through the combs each fall, by various means, was resorted to, only to be filled up the following summer, when, as winter approached, the process had to be repeated."

"Did you try these plans?"

"Most assuredly I did, and believed I was doing the right thing; but after trying all of them it soon became apparent to me that the reason assigned as the cause of the death of the bees was not the real trouble, for I found, after repeated examinations, that bees would stay and die within half an inch of these holes, when it would appear that they could pass through these passages just as well as not; and in some instances they would stay and die right in and on the very edge of these holes."

"That was strange, certainly."

"Yes. And I also discovered that, when the weather was cloudy, cool, and rainy for several weeks before it became severely cold, this loss was apparently much greater than when a clear warm day occurred immediately before a severe cold spell."

"Why should this be so?"

"By the number of bees that were found on boards, the edges of the hives, fences, etc., dull and stupid, after such a fine day, I concluded that these were the same bees that would have been found dead by not following the cluster, had not a warm day occurred for them to leave the hive to die; hence I said that the loss was apparently greater when no such day occurred, for many more bees were seen outside the cluster dead, as they had no chance to go out of the hive to die. Since then I have watched very closely, and from these years of watching I see no reason for changing the conclusion that I formed at that time."

"But don't you find little knots of dead bees away from the main cluster after each warm spell during the winter?"

"After the bees once get thoroughly clustered I do not see this loss occurring to any such extent after each warm spell, and but little after a very mild fall; and for the reasons I have given you, I now pay no attention to passageways through the combs for bees, nor have I done so for the past twelve years."

"I suppose it would do no harm for me to try a few with holes through the combs?"

"No, not in the least. That is what every one should do where there is a point of dispute. Try the thing for yourself, and when, from these trials, you become convinced as to the right, adhere to the right and let your light regarding the right shine out to others."

"Well, I must be going now as I see it is nearly nine o'clock."

"Just a word or two before you go, so you can understand this wintering matter a little better: After the cluster of bees has become fully settled for winter, and this loss of old bees has passed away, a colony will lose but few bees for six weeks or two months, and will remain quiet. If at this time a warm day occurs so they can fly freely they again cluster back quietly and remain so about the same length of time, when they again desire to fly; and if such a chance occurs all will go well, and the bees will winter well. Thus we have a colony in a normal condition, and all the cold ever obtained in any portion of the world where bees can be kept with profit (occurring during this period between flights) will not freeze or materially injure them if they have plenty of good stores within easy reach of them."

"Oh, yes! Just one question more before I go. Did you notice Dr. Miller's calling attention to an omission of yours, by your not telling us when you took the dummies out, where you hived a swarm on half-inch starters, and what you did after taking the dummies out by way of supplying their places?"

"Yes, I noticed what Bro. Miller said on page 911, and thank him for calling attention to the matter. I have been so driven this year that I have left undone many things I ought to have done; and the leaving-out of that part was one of the 'left' things. The dummies are kept in till the close of the white-honey harvest, when they are taken out and the hive filled with drawn or full combs, which the bees generally fill with dark honey to an extent sufficient for the bees to winter on."

"Where do you get these drawn combs?"

"By the process of shaken or driven swarms, now in use by very many of our best apiarists, this matter is very easy. When the swarm is made we have the combs of brood and honey after being freed from the bees. I place these combs of brood, etc., on a weak colony, and at the next making of swarms another hive of these beeless combs is put on, till in this way I often have three, four, and sometimes five hives of comb, brood, and honey on one of these weak colonies, or on one which was weak to start with. but not weak in bees now that the most of the brood has emerged. When the dummies are removed these tiered-up combs are just the ones which are used to fill out the hive; or, in other words, used to take the place of the dummies."

"Glad I asked you. It is all plain to me now."

Editorial
By E.R. Root.

WE have on hand quite a number of manuscripts on the subject of killing skunks. We have already given place to several, two of them in this issue, and so we think we have, perhaps, given enough space to this subject for the present.

A GEORGIA correspondent of the *Southland Queen* takes Mr. J. E. Chambers sharply to task for asserting that no one but a fool will use wire in brood-frames. He says if this is true, "there is a big lot of us fools." He then adds, "Why, combs without wire will break out and ruin enough in one season to pay for wire, time, etc., enough to justify the bee-keeper in putting in half of his time in wiring his frames."

SELF-SPACING OR LOOSE FRAMES.

MR. HUTCHINSON, in the *Review*, finds that there is a feeling against self-spacing frames, particularly the Hoffman. He himself wants nothing better than the old-style Langstroth, with ⅜ top-bar. His experience is quite different from my own, for most of the people I run across in my travels much prefer the Hoffman; and it seems to me I can do twice the work with a non-burr-comb self-spacing frame that I can with the ordinary thin and narrow top-bar Langstroth that will be all matted up with wax braces. The leading supply-manufacturers of the country furnish the old-style Langstroth, thick-top Langstroth, the Hoffman, and closed-end frames. The purchaser can have any one of them as an option. I do not know how the trade of other manufacturers runs. but ours runs almost exclusively to the Hoffman. Fearing that it might be too much of a good thing, we attempted to steer the trade, two years ago, toward a thick-top unspaced frame, but it would have none of them. I have talked with some large extracted-honey producers in the West and South, and they say they much prefer the Hoffman; and yet it is perfectly plain that another man might run across another class of people who would regard them as nothing but nuisances. This thing must be borne in mind, that the character of propolis varies in different localities; and I am free to admit that in Dr. Miller's location I should prefer, as does he, a metal-spaced frame.

COUNTING THE COST.

A Colorado bee-supply factory has started up, with every assurance of success; and there are some other little shops starting elsewhere, and we hereby offer to them the hand of fellowship. This is right and proper. The field of the United States is very broad, and so far the manufacturers are not complaining on account of a want of trade. In all of our years of experience we have had all we could do; and we have wished most severely at times that we did not have so much business. But the new concern that launches out into making supplies should not figure on the mere shop cost, but on a ten per-cent depreciation of machinery, a fair allowance for capital invested, and general expense. One who essays to make bee-supplies, or any thing else, in fact, for the public, will find, if he desires to make both ends meet, and make a little profit, that he must add *at least* 50 per cent to shop cost. By "shop cost" I mean material and labor. It is a rule to add more than this — even 100 per cent in most lines of manufacture—to cover bad accounts, goods out of date that will not sell; advertising, office help, accidents, and, as I said, insurance, taxes, interest, and depreciation. There have been scores of little factories started, but most of them have gone out of business, for the simple reason that they have not added to their item of cost what is usually termed "overhead expense" — an item that can not be avoided. Perhaps this advice may seem gratuitous to some. Gratuitous or not, if they will heed it, it will make all the difference between success and failure.

THE CINCINNATI CONVENTION; A FOUL-BROOD BILL FOR OHIO.

It was my pleasure to attend a meeting of the Hamilton Co. Bee-keepers' Association, that comprises a membership of fifty or sixty, all told, in the vicinity of Cincinnati. The Hamilton Co. people are very much in earnest regarding the desirability of securing a foul-brood law that will protect us against negligent and incompetent bee-men, who, unless there is a law to prevent, will allow it to spread among those of their neighbors who are more progressive. The first draft of the bill was presented by Mr. J. E. Painter, at the convention, in the presence of representatives Wayne and Herrick, both of whom promised their support, and offered valuable suggestions. Mr. Herrick was formerly a bee-keeper, and fully understands the urgency of the measure from a bee keeper's standpoint. He will probably father the bill.

The meeting was not large, but very enthusiastic, and it is apparent that the solid support of the Hamilton Co. delegation may be expected in the next general assembly. The proposed draft of the bill is now in the hands of the committee appointed by the Hamilton Co. Association; and as soon as it is thoroughly digested I hope to present it to our readers. It provides for county inspection on about the same lines as prescribed in the excellent law now in force in Colorado. It is very explicit, and seems to cover every possible contingency; and for conditions that exist in Ohio it is probably better than a law that provides for only one inspector for the whole State. I have been opposed to county foul-brood laws; but the arguments that were presented in favor of a measure like that in Colorado convinced me that it would be a good one for Ohio.

It was not deemed wise to effect a State organization, but, rather, that the several counties where bee-keeping is most prominent be organized, and that they submit to the next legislature suitable resolutions or memorials, signifying the urgent need of foul-brood legislation in Ohio. Gleanings is anxious to get several counties organized on the New York plan. With several good working counties we could later on, if necessary, effect an affiliation of the several organizations, making what might be called a State organization such as is in practical operation in New York.

AN AUTOMATIC CLOCKWORK SMOKER.

Some time ago Dr. Miller referred to the fact in one of his Straws that there was a smoker made in Germany that was operated by clockwork in connection with a little mechanical fan or blower. We immediately put ourselves in communication with the inventor or manufacturer, and now have before us one of these smokers. It is the invention of Mr. Joseph König, a German jeweler, and was patented in the United States, Dec. 31, 1901. The accompanying illustrations are made direct from those in the patent specifications, and show fairly well the general details and design of the smoker. The lower portion of it, referred to in the illustration, Fig. 1, contains the clockwork and blower. The clock is wound up at the keyhole S. A lever, M, releases a little clutch which allows the fan, or blower, to spin like a top. As soon as enough smoke is blown, the power is shut off by pushing the lever back. When more wind (or smoke) is wanted, the lever is shoved upward, and again a blast of air is started through the stove. The whole arrangement is quite ingenious, and is thoroughly well made. It takes about a minute to wind it, and about twenty minutes for the clock to run down if operated continuously. In ordinary practice in the yard, once winding would last half a day.

So far the arrangement seems to be very unique. But what is the defect, if any? Clockwork sufficiently large and powerful to send out a blast of smoke equal to that sent out by a common smoker would be awkward and heavy. This mechanical smoker sends out a very light blast of air—so slight that it can scarcely be felt. The smoke can, however, be sent several inches from the nozzle, and perhaps it is far enough for a good many operations. It weighs, however, about three times as much as the average smoker, and the fuel capacity is only about a tenth of that of an ordinary standard bellows smoker. It would do very well for a small number of colonies; but for the average American apiarist I doubt if it would give general satisfaction. The cost of it will be at least five times as much as that of a common bellows smoker, I should judge from its general construction.

Fig. 1.

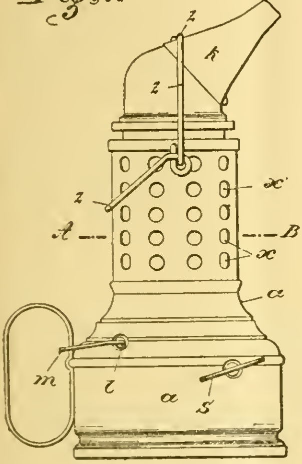
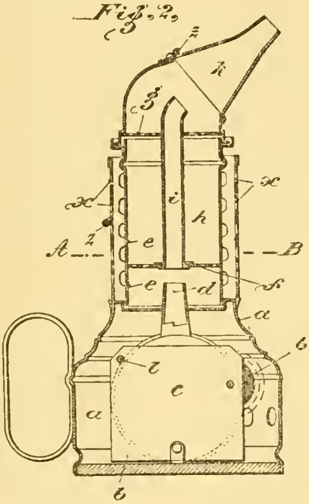


Fig. 2.



Its cost. weight, weak blast, and the possibility of the train of gears and little blower getting out of order, would prevent its having a very large sale in America. However, I note that there are a good many testimonials in its favor, from German bee-men.

The general design of the smoker shows a surprising amount of inventive ingenuity. It must have taken an expensive set of dies for making it. Every part seems to be stamped out to a certain definite shape that could be used for no other purpose than this particular device; but it is doubtful whether American manufacturers would be willing to undertake the manufacture of any thing so elaborate and expensive as this.

AIKIN'S PAPER PACKAGE FOR CANDIED HONEY.

Elsewhere in this issue we illustrate two of Aikin's latest candied-honey packages, the 10 lb. size. The honey came wrapped in old newspapers packed in an ordinary cracker-barrel and was received in splendid condition all the way from Colorado.

In order to give one a comparative impression of the size of these 10-lb. packages, I instructed our artist to put a man's hat on top, and this he did, only it's a cap.

To the lover of good honey — those who love to eat it in considerable quantities — these 10 lb. sizes will prove to be very popular. If one desires only a little dab, a 10-cent bottle will be sufficient; but if he has honey on the table every day, he will of course buy not less than 10 lbs. The Aikin package is so cheap that, after he puts down his money, he is buying only honey—not a tin can, tin pail, nor a bottle that is of little or no use to him after the honey is out.

But candied honey is always rather unpleasant to handle in a tin can. A good many like to eat it in the solidified state, and it is no easy job to get it out from an ordinary bottle or can. The other day I called for some candied honey, and my wife remarked that I would have to get it out of the can, for she had given up in despair. So she brought out a big Mason jar and told me to help myself. I inserted a case-knife, but the honey would slip off after I had pried it loose. I next called for a big iron spoon. But I bent its handle in fantastic shapes, and succeeded in getting only little chunks at a time. I next tried a thin-bladed butcher-knife. This was somewhat better. I then said to Mrs. R., "We must have some of that Aikin honey that we can peel like a bologna sausage;" and now there is over at our house a 10-lb. honey bologna that *is* a pleasure to handle and eat in great mealy chunks. Just peel the paper down one side, take a case-knife, and slice off a chunk just as you would cut off so much cheese. Talk about convenience and delicious sweetness! the best comb honey I ever saw is left away in the shade.

Perhaps I am peculiar; but I rather like candied honey; and extracted of any kind I prefer to comb. I do not like to chew gobs of wax if I want to eat honey; and that is the reason why extracted, either liquid or candied, has my preference. I do not know why, but in the winter time I have a great liking for the solid kind; and that is why the Aikin package fills a long-felt want at our house.

But I note that the last lot of Aikin honey came in bags that had not been previously paraffined. Whether Mr. Aikin has found the waxing unnecessary or not, I can not say; but I should feel very sure that our Eastern honey would at least require coated bags. And that leads me to say that I doubt very much whether Eastern honey, as a rule, should be put up in paper unless it is used very soon after it gets into the hands of the producer. While in the possession of the dealer it should be kept in the cold, otherwise it will have a tendency to leak or ooze out through the paper. Colorado honey, from its pronounced tendency to granulate, would remain solid until clear up into warm weather. But I doubt very much whether Eastern candied honey will do so.

The reading on these packages is not very plain, and so I will reproduce the general directions, which are as follows:

> The candied condition of this honey is proof of its purity. If preferred liquid, put it into a pail, and the pail in hot water—not much hotter than you can bear your hand in. *Never let it boil.* Boiling spoils the honey flavor.

I wish to call attention to the words made emphatic, *Never let it boil*, and further attention to the very excellent suggestion of putting honey to be liquefied "into a pail of water that is not much hotter than you can bear your hand in." Many make the mistake of getting the water too hot, and thereby very much impairing the flavor. The other day my wife, in getting the last remnants of candied honey out of a glass jar, put it into water so hot that the flavor of the honey was appreciably affected. If the wife of a bee journal editor will commit such an unpardonable sin, is it not probable that hundreds of consumers would do the same thing? They can not have the fact put before them too strongly, that the water should not be much warmer "than you can bear the hand in;" and let me tell you it will be far better to put the pail into lukewarm water and let it stand for several days, or until it comes to a liquid condition. Such honey will be much finer than if it be liquefied in a few hours; and slow liquefying will keep the honey in a liquid condition longer than if it is brought to the melting-point in a short time.

There is quite a trade starting up in bags for candied honey; but let the Eastern bee-keepers be careful to see that honey put up in them is taken care of before summer weather comes. The Aikin honey or any other equally fine will probably be all used up before it can melt or run over the shelves.

I have in my hands a sample of the ten-pound size. It is as hard as a block of wood. Indeed, if I wanted to knock a burglar down—knock him into insensibility—I think I would lam at him one of these packages, if a brickbat were not in sight.

THE LOS ANGELES CONVENTION, AS REPORTED BY THE AMERICAN BEE JOURNAL;
J. S. HARBISON, J. G. CORY, A. I. ROOT.

THE reports of the talks from bee-veterans, above mentioned, in the issues of the *Am. Bee Journal* for Oct. 29, Nov. 5, Nov. 12, ought to be worth a dollar to every bee-keeper in the land, especially to any one who has any regard for what happened in the earlier days of our industry. I once thought of copying from the "Old Reliable" the talks from the above three; but so many of the readers of GLEANINGS take the *Am. Bee Journal* also, it would hardly be fair to them to give the same story twice. Another thing, it would greatly crowd the pages of our own journal when we have already more valuable articles than we can find room for. There are some mistakes, however, probably made by the stenographer, that I wish to mention. On page 694 Mr. Samuel Wagner is credited with making the first machine with rollers for making comb foundation. Instead of giving Wagner the credit it should have been *Washburn.* Mr. Alva Washburn, of Medina, Ohio, made the first pair of rolls the world ever saw, for rolling out comb foundation. He did this while working for me by the day; but, notwithstanding, the credit is due to him more than to anybody else for having carried the operation through its experimental stage, and making it a practical success.

On the same page we are told that our good friend T. F. Bingham, of smoker fame, has "hives of his own." It should read, "a *hive* of his own." It would seem very strange if an old bee-keeper like friend Bingham did not have some "hives," more or less, of his own.

On the same page, lower down, we are told the daily papers spoke about a "Quaker chap down in Ohio." The word *Quaker* should be *queer.* I have always been more or less *queer* to the outside world, but I have never been a Quaker.

On the next page we read, "The sorrow that covers a man's grave is oftentimes the poultice that draws out his virtues." The word *sorrow* should be *sod.* I used the old proverb in speaking of the death of T. G. Newman.

On the same page, toward the close, after commenting on the friendly visit that Mr. Langstroth had with Moses Quinby, I intended to say something as follows:

After pleading so earnestly with father Langstroth to go and have a friendly visit with Mr. Quinby, before death took one or both away, I felt a good deal discouraged. I probably said to Mrs. Root, "I shall have to give it up; it does not seem to be of any use." Very likely, just then and there I knelt down and prayed that the Holy Spirit might do what I in my feeble strength had failed to do. Now, I can not remember that I did this; but so often, when discouraged in trying to move human hearts, I have done this very thing, I think it is quite likely I did so. I know this: When I went into his room in the morning I was greatly astonished to find my prayers were answered. As there is a very great moral in this simple little story I think I will repeat the rest of it here. Father Langstroth was a little late in getting up. I knocked at the door, and then went into his room. Without saying a word he pulled his watch out from under his pillow, and handed it to me asking me to listen to its ticking. As I was a jeweler by trade at that time, I supposed, of course, something was the matter with his watch. Then he said, "Friend Root, what does that watch say to you. I began to laugh, and said, "It simply says tick, tick, tick. What else should it say?" Then came the unexpected and wonderful reply that I believe was characteristic of father Langstroth. He said, "Perhaps it says to you only tick, tick, tick, but to me it has been saying 'Quinby, Quinby, Quinby,' all night long; and I am afraid the watch will keep on saying 'Quinby, Quinby, Quinby,' until I start down there and shake hands with father Quinby, and we two become friends." He started off for York State at once. In a few days he came back and said, "Mr. Root, I have had one of the best and pleasantest visits I ever had in my life. We talked things over, and he did not find any fault with me, and I didn't find any fault with him, and we are going to be friends as long as God lets us live." And so they were; and the bee-keeping world can all rejoice that, notwithstanding the misunderstandings between those two great pioneers, both of their lives closed with the kindest feelings and relations one toward the other. There is encouragement here for those who have become discouraged, perhaps, in their attempts to act as peacemakers. I said in my talk in Los Angeles, "There may be some people here to-night whose watches, if they do not say 'Quinby, Quinby, Quinby,' may be saying something else, and will continue to say it until they get up and do the right thing as Mr. Langstroth did."

Let me say once more, if there is a reader of this journal anywhere on the face of the earth who has not had the three copies mentioned, of the *Am. Bee Journal*, send at once to Bro. York for them. If you do not wish to subscribe for a year, you can have it for three months for 25 cents; and I am sure Mr. York will will send the three copies I have mentioned, for a dime. If he will not, you tell him to write to me and I will pay the balance.—A. I. R.

PROFITS IN BEE-KEEPING; OPINIONS OF THE EDITORS OF THE AMERICAN BEE JOURNAL AND THE BEE-KEEPERS' REVIEW.

Two editorials have lately appeared in two of the leading bee-journals of the United States, which should attract more than passing attention. First we will give the editorial by Mr. York, which is as follows:

> The following is a sample of some of the correspondence that has come to this office lately and within the past few years:
>
> Mr. York:—I believe the common bee-keeper is the milk-cow of the big supply-factories, and the commission houses of the big cities. I can see no profit in bee-keeping. And it looks to me funny when factories advertise in bee-papers that the bee-keeper should borrow money and send it to the factory to get goods early. Those people like to get all the money out of the bee-keepers, and let the latter have only the bee-stings in the summer time.
>
> I believe there is a great big humbug in comb foundation. It will stand the heat of an ice-box but not the heat of a hive full of bees. It must be more than half profit. Of course, there is more profit in that kind of foundation. I wouldn't use any foundation without wiring the frames.
>
> Baptist Beck.
>
> Being entirely out of the bee-supply business now, we feel that we can offer a few comments on Mr. Beck's letter without being accused of having "an ax to grind."
>
> In the first place, we learned enough about the bee-supply business, while we *were* in it, to know that there is no fortune in it for any one, be he manufacturer or dealer. Why, if the profits in making and handling bee-supplies were equal to those in many other lines, bee-keepers would be compelled to pay about double the present retail prices for the supplies they use in their apiaries. We feel that we know something about this matter, for we are in a city where there is a great variety of business done, and we know that the profits in a number of other lines of trade are far in excess of those connected with handling bee-supplies and honey.
>
> As to the intimation of Mr. Beck, that comb foundation is adulterated, we can only say that the bulk of the comb foundation sold to-day is made by the Weed process, and the fact is that the sheeting method of that process will not work adulterated wax. So that idea of Mr. Beck is entirely wrong. Almost any bee-keeper knows that on a very hot summer day, with a heavy swarm of bees in a hive not ventilated, any kind of comb foundation will likely melt down if not wired in the frames.
>
> As to there being no profit in the bee-business at the present price of honey, we suppose that can also be said of any other farm products at different times during a series of years. But we venture to say that there are a good many bee-keepers who would never complain at all, only guarantee them a fair crop of honey every year. They will take care of the price.
>
> The fact is, there has never been a general oversupply of honey in this country. There may often be more produced in any one locality than can be used there during the year; but there are always many other places where not nearly enough has been produced to supply the demand. What should be done is to even up the surplus crop—distribute it more evenly throughout the country. Then a better price could be secured.
>
> Honey will not usually sell itself, any more than it will take unto itself legs and walk off. The honey-producer must make some effort to dispose of his crop. But he must see to it that it is put up in the best possible shape for the market—properly graded, and neat and clean. He then needs to watch the markets—learn the supply and demand, as far as possible.
>
> In our experience as a bee-supply dealer we have not found the bright pushing, up-to-date bee-keepers objecting to the ruling prices on b e supplies. We have come in contact with a great variety of bee keepers, too, in what was our bee-supply department. No one hears of a Coggshall, a Dr. Miller, a France, a Brodbeck, or any other large bee-keepers complaining of high prices of bee supplies. They have done business enough to know that, when the expenses connected with manufacturing and handling bee-supplies are considered the present prices are none too high. But, actually, there are a few bee keepers who think $1.00 is a high price for 52 copies of the *American Bee Journal!* But we doubt if any one can afford to keep bees at all if he can not afford to pay a dollar for a bee-paper
>
> As to the suggestion that bee-keepers borrow money and buy supplies in the fall, that is all right It would in some cases be a saving to the bee-keeper to do that. And for so doing, an early-order discount is offered by some manufacturers. But, of course, no one need borrow money or buy supplies in the fall just because some bee-supply manufacturer suggests that he do so.
>
> In conclusion, we want to say that we don't know of any bee-supply dealer or honey-dealer who is getting rich in either business. Neither do we know of any honey-producer who is getting rich. Bee-keeping is not a get-rich-at-it business; neither is the bee-supply business nor the bee journal business. But all are businesses in which a fair honest living can be made by hard work, and by "keeping everlastingly at it."

Here is the editorial from the pen of Mr. Hutchinson:

> There has been a very sharp advance in the price of bee-supplies—notably in hives. As a result if there ever was a time when it might be profitable for some bee-keepers to make their own hives it is now. Nearly all bee-keepers are located within reach of a planing-mill, and at such a mill the bottom-boards, covers, and bodies of hives can certainly be cut out more cheaply than they can be bought of some supply manufacturer—to say nothing of the freight. A bee-hive does not need a lot of fancy fixings. A plain board for both bottom and cover, with cleats at the ends to prevent warping, is all right for a large majority of localities. It is exactly what I should choose for this locality. Some ⅜ strips sawed from ⅞ lumber can be tacked around three sides of the bottom-board

(on top, at the edges) to raise the hive from the bottom-board, and just the plainest kind of plain joint at the corners of the hive, just as a common box is nailed together, is all right for the body of the hive. A plain rabbet for the frames to hang in is all right here. Such a hive as that can be cut out at any planing-mill, or may be cut out with a foot-power saw, and the veriest tyro can nail it up and paint it.

As for frames I ask for nothing better—in fact, *prefer* simple all-wood frames, the stuff cut from the edge of a ⅞ board, the end-bars and bottom bars being ⅜ thick and the top-bar ½ inch thick, the pieces being nailed together with the right size of cement-coated nails. Such frames all nailed up ought not to cost over $1.00 a hundred.

With the prices in view that bee-hives are likely to reach, it will be well for bee-keepers to be rigging up or buying a buzz saw, building a horse power, putting up a windmill, or buying a gasoline engine. Foot power will answer if there are not too many hives to saw out.

These appeared almost simultaneously, and both are the free expressions of the editors themselves. There is no direct conflict of opinion, and yet in one way there is. It would almost look as if Mr. York had written this editorial from the standpoint of the supply-manufacturer; but the fact that he sold out his supply business because there was no great money in it, but an immense amount of hard work and small profits, puts him in a position to know what he is talking about.

As a supply-manufacturer, and editor of a bee paper, perhaps I should not say any thing on this question, for I realize that whatever I say is liable to be misconstrued as an opinion based on the almighty dollar; but I will try to give the facts as I know them from the standpoint of the manufacturer.

Part of what Mr. Hutchinson says is true. There *are* times and places where *some* bee-keepers can go to their nearest planing-mills and get their hives made, and perhaps save some money. This is conceded; but in the great majority of cases it will be a money-losing venture, I think. The large manufacturer of bee-hives can, as a rule, supply hives ready to put together in lots of 100 at a price equal, or nearly so, to what the bee-keeper would have to pay for the same grade of lumber at the average planing-mill without any work put on it. This seems like a broad statement, but let us see how it works out in fact. Good clear first-class lumber, such as the manufacturers are now putting out in their hives, with few or no knots in, will cost at the planing-mill between $50 and $60 per 1000 feet; but we will say it is 5 cents a foot. A standard eight-frame Dovetailed hive has 20 feet of lumber in it, including waste necessary. This makes the lumber in that hive cost $1.00. At 6 cents a foot it will cost $1.20. Let us now look at a 1904 catalog. We find that the price of an eight-frame hive in lots of 100 is $1.25 (for it would be folly for any one to make less than a hundred hives). If a bee-keeper goes to a planing-mill he will pay, then, almost as much for his lumber, or perhaps just as much, as the regular supply-manufacturer would charge for the hive all cut ready to put together *without any waste.* But labor has advanced, and the mill-man will not charge less than 40 cents an hour, and possibly 60. He is not familiar with hive-making. His saws are coarse toothed, and his men do not realize the importance of extreme accuracy in hive-making. The hives at the ends will not be lock-cornered, for the mill has no machinery for that purpose. The boards when put together will have to depend entirely on the nails for the strength of the corner.

Perhaps it might be said that the bee-keeper will have to pay freight on his factory hives, but they will be accurately cut and standard in every respect. I have seen a lot of planing-mill hives, and heard some of the bee keepers who had hives made in that way tell their experiences. The stuff was irregular, the frames would not alternate, they were very rough, and the work was altogether unsatisfactory.

But perhaps some one does not see how a manufacturer can furnish a bee-keeper a complete hive at the bare cost of the lumber in the open market. The supply-manufacturer can buy by the cargo and a comparatively cheap grade of lumber, and cut around the knots. Here is a board that is 12 or 16 feet long. We will say it has four or five knots in it. Out of this board he may be able to cut out of the clear stock two or three ends or two or three sides. There will be several boards that have knots in them. The manufacturer, who is in the business, can use these for a great variety of purposes, and not lose money on them. Some of them will go into the ends of square (can) boxes; others will be used for crating; some will be used for a great variety of purposes too numerous to mention. The bee-keeper who desires to have his hives made in a small way would have to buy clear stock at a price of $50 or $60 per 1000, for the planing-mill could not afford to throw away short boards having knots in them, for it would have no use for short knotty boards. Its business is making sash, doors, blinds, door-cases, window-frames, etc., and it can use *only lon stuff.* It will, therefore, be necessary for the bee keeper to buy clear stock, which is expensive, as he can not afford to have hives with loose knots in that are liable to fall out. He may argue that he can use a cheap grade of lumber; but experience with thousands of customers shows that the average customer won't have such lumber in hives at *any price.*

It is true there has been a sharp advance in prices on bee-supplies; but the marked advance in lumber, in labor, and in all common commodities, has made this all necessary. Prices on bee-goods have hardly kept pace with other commodities.

As to the Baptist friend in the first quotation, Mr. York might have added that three of the large supply-manufacturers have offered to sell out, as they could make more money in some other business. Bee-hive making is no sinecure for anybody.

Mr. Hutchinson suggests that, with the prices in view that hives are apt to reach, it will be well for bee-keepers to rig up a buzz-saw or a horse-power. The old adage, "Don't monkey with a buzz-saw," is good advice for nine men out of ten. There are very few people who have mechanical ingenuity enough to run a buzz-saw without coming to grief. If they do not saw their fingers and maim themselves for life, they may do very bad work. Mr. Hutchinson got up a home-made buzz-saw years ago, because he is a natural genius and a fine mechanic. But where there is one W. Z. H. there are thousands who do not know even the A B C—much less the W Z's.

A short time ago we published a letter from one of our friends who had bought a buzz-saw, thinking he could make his own stuff cheaper. After he got through he took account of the cost, and found his hives cost him nearly or quite twice as much as those he could buy at a factory. He had lost one finger; his hives were poorly made, and all he had was the experience and a lot of supplies that were bound to be a continual annoyance, and a fifty-dollar buzz-saw "for sale cheap."

Now, in taking this view from the standpoint of the manufacturer I have tried to give the exact facts as I happen to know them—not because I am interested in having bee-keepers buy hives of the Root Co., but because I am anxious to have the exact facts come before the public. I know that Mr. Hutchinson will not misconstrue my motives, even if he doesn't see the matter as I do.

IMPORTANT VICTORY FOR THE NATIONAL BEE-KEEPERS' ASSOCIATION.

EARLY last spring Mr. S. W. Kammer, of San Antonio, Texas, was fined $50 in the corporation court for keeping bees in the city as a nuisance. As he was a member of the National he appealed for assistance, through Udo Toepperwein, a director, who wired the General Manager. Mr. Toepperwein immediately received instructions how to proceed, and was given full charge of the case. An appeal was entered in the county court, wherein it was shown there was no law against keeping bees in the city, and that they could not be declared a public nuisance, as was shown by various court decisions regarding other similar cases. The case was, of course, decided in favor of the bee-keeper.

This is an important decision, as there are several hundred bee-keepers in San Antonio; and important in a larger way because it adds another decision or law precedent to be used effectively in cases of a like nature.

General Manager France says that Director Toepperwein deserves very much credit for the promptness and skill with which he handled this case. As Texas is already a very large honey-producing State, and is bound to be much more important in the future, this early decision in favor of the bee-keeping interests of this great commonwealth is highly gratifying.

COMING IN CONTACT WITH THE BEES.

EDITOR HILL, of the *American Bee-keeper*, writing on another matter, incidentally speaks of the value of having the editor of a bee-paper come into actual contact with the bees. He adds:

> Note the zest characteristic of editorials written under the inspiration of a day's contact with practical apiary work, as displayed, for example, in the case of Mr. Root, editor of GLEANINGS, occasionally. Whence cometh this distinguishing activity and practical tone which arrests the attention and causes one to feel that he is an eye witness if not a participant in the operations about which he reads? Whence? From the fountain head which is the source of knowledge upon which our industry is based, and without which it is improbable, to our mind, that any man is better qualified to direct than those who have freely imbibed.

Bro. Hill practices what he preaches; for he is quite a man to rub up against bees. His editorials show it.

FOUR-PIECE SECTIONS.

A CORRESPONDENT in the *Bee-keepers' Review* wishes to know where he can get four-piece sections "in perfect shape." The truth of the matter is manufacturers have not catered to this kind of trade, as the demand has been so light that it did not pay to keep special machinery for the purpose.

GENERAL
CORRESPONDENCE.

EXTRACTING-HOUSE ON WHEELS.

How to Build; its Use, etc.; a Valuable Article.

BY JOHN F. CROWDER.

Having seen inquiries in GLEANINGS in regard to a honey-house on wheels, I send you a description of one I have, which has been in operation the sixth season, and which I would find it impossible to do without. The same is built on a goose-neck dray, as you will notice in the cut. The floor of this dray is 4 × 12 feet, with stake-keepers around the out edge about every 3 feet, which enabled me to make a detachable house, and from which I may remove the house and use the trucks around the ranch. As I said, the floor of the dray was 4 × 12 feet, so I began from the bottom and raised the walls up 30 inches high; then I made a jog of 14 inches, which makes shelving to set the hauling-boxes on, and any thing else that may be in the way upon the floor; and under this shelving I have for braces cornice-braces, which I have bolted well to uprights, which are 2 × 3's, and this gives me a solid foundation to go on; so from here up it is 6 × 12 and 7 feet high in all. In the rear end is a door 2½ × 6½ which will just admit a four-frame Cowan extractor nicely. The front end is all boarded up excepting a small window 10 × 15 inches. The sides are boarded up to one foot above the shelves (which keeps the bees from bothering the honey that might be on the shelves); then I have a yard-wide screen, and at the top an eight-inch board. The sides are made of one-inch ceiling, and the roof of half-inch, all tongued and grooved, which makes a light structure. I have a false floor which rises one foot, and in this space between the floors I have a tank one foot deep and 3½×4 square, covered with galvanized cover, over which this false floor is laid, which is made in an L shape, and easily removed. Upon this floor I set my four-frame Cowan extractor, pushed well back in the corner, and fastened to stay for the season; and directly under the faucet of the extractor I have a hole cut to hold a strainer, which is detachable without removing the extractor; consequently I make the honey self-straining; and to my right, as I go in, I have a tank one foot deep, one wide, and three long, on top of which I have two boxes the size of an eight-frame super with perforated zinc bottoms, which are used for uncapping-boxes, which I think are a success; and to the end of this tank, next to the raised floor, I have a two-inch pipe attached which carries all of the drainings from the uncappings to the strainer, and into the main tank from which I draw off the honey from the outside of the house.

Said tank holds about 100 gallons, or an average day's extracting, though I will say right here that my brother and I, in 1899, put 43 cases of honey through it in two days, which was not bad extracting.

On the shelf at the end of the uncapping-tank I have another small tank made "trofting," in which the uncapper puts the combs if he should get ahead of the man at the wheel, in the end of which I have a small pipe which drains into the draining-tank of uncappings the honey that may drip, so you see after I get started I have only to measure up at noon and night. Thus I save lots of time that most bee-keepers have to put in in draining and cleaning up, which is quite a figure when it comes to extracting several apiaries. I have 18 apiaries in all, ranging from 50 to 150 hives, and in three townships. To reach them all we have to drive about 50 miles, so you can readily see that we have to clean up a little more than an apiary a day to get around in time for another start.

Another very handy thing is a wheelbarrow, which many bee-keepers do without. I always take along one about fifteen years old, and has been a great deal of service to us. Brother McCubbin gave it to me in 1893, after he had used it for several years. It has wheeled many a ton of honey, ranging from 5 to 30 tons a season. It is getting old and wrinkled, and crippled in the hind legs. Sometimes I think I will turn Republican and put her on the pension list and retire her from active service. Some other handy tools are hauling-boxes which I have. These boxes are the same size as the extracting-supers, only one inch deeper; they are lined in the bottom and three inches up the side with tin, and therefore catch whatever honey may drain from the combs, which saves taking off the supers and smearing every thing up with honey, etc.

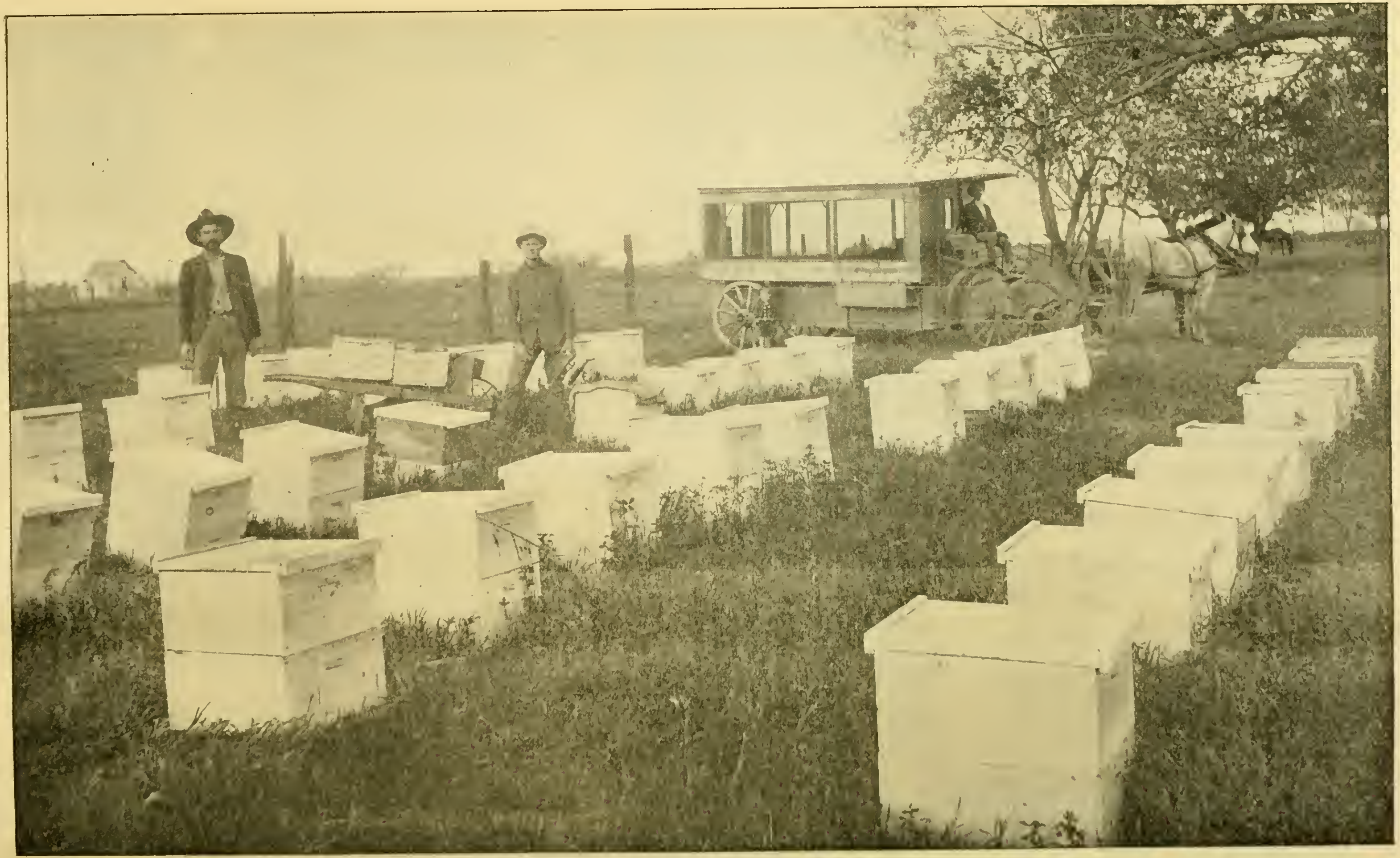
Selma, Cal.

[This scheme of a portable extracting-house, while not entirely new, is carried out by Mr. Crowder in a very unique and practical manner. The plan of having the honey-tank at the lowest point possible in the general structure, and having overhanging shelves just over the rear wheels, is most excellent. All in all, the Crowder wagon is, I believe, by all odds the best of any thing of its kind that has ever been presented to our readers. So excellent is it as a whole that we expect to have it incorporated in the next edition of our A B C of Bee Culture.

In a series of outyards it makes it possible to use only one extractor and outfit, and to carry away the honey as soon as extracted, where it will not be subject to the depredations of thieves. I have always felt as if it was a dangerous practice to leave tons and tons of extracted honey at the outyards. It is an invitation as well as a temptation to persons of low moral standing to help themselves. There is only one extractor to muss up, only one general outfit, and the building is quite large enough, with proper management, to take care of the extractor, the honey extracted, and the operator or operators inside. One does not need a lot of floor space to walk on; indeed, too much floor space is a real detriment, for one is apt to make useless steps over the room to perform his work. With the right kind of system I feel very sure one can make an extracting-house of this kind that will beat the scheme of having several cheap buildings at the several outyards. It will save the first cost, and render necessary the purchase of only one outfit.

There is one thing that friend Crowder has not spoken of; and that is, that, while going to the several yards, the men "inside" the wagon can slick up and get things ready for the next yard. I should suppose that three men could handle the whole outfit nicely. Possibly two might do it — one to take off the combs, and the other to extract and uncap.

I suggest that our extracted-honey men give this article their thoughtful attention. The business of producing extracted honey is getting to be more and more of a science, and our friend Crowder, in my humble opinion, has made a long scientific stride forward. When sections become more scarce and expensive, and when there are pure-food laws in State and nation, extracted honey will to a great extent supplant comb honey, and its production will become more general. — Ed.]



AN EXTRACTING-HOUSE ON WHEELS.—SEE OPPOSITE PAGE.

Heads of Grain
from different fields

DR. MILLER'S FURNACE-HEATED CELLAR, AND HOW THE BEES WINTERED IN IT.

Dr. C. C. Miller:—I had hoped to hear before this time how your bees wintered in that cellar with the furnace in it, and the temperature as high as 70, where some of the hives stood near the hot air pipes. I am now getting my bees ready for winter. I have formerly wintered them on their summer stands, with a home-made winter-jacket over them with three inches of planer-shavings around between the hive and the jacket, and six inches of the same material over them, with fairly good success. I have a furnace-room where I could put a large number of the colonies if the high temperature would not make it unfit.

First, can I winter in the furnace-room if I can keep the temperature at 60 or below, provided other conditions are favorable?

Second, will my going into the cellar to attend to the fire in the furnace have a tendency to disturb the bees, either on account of the noise or the light?

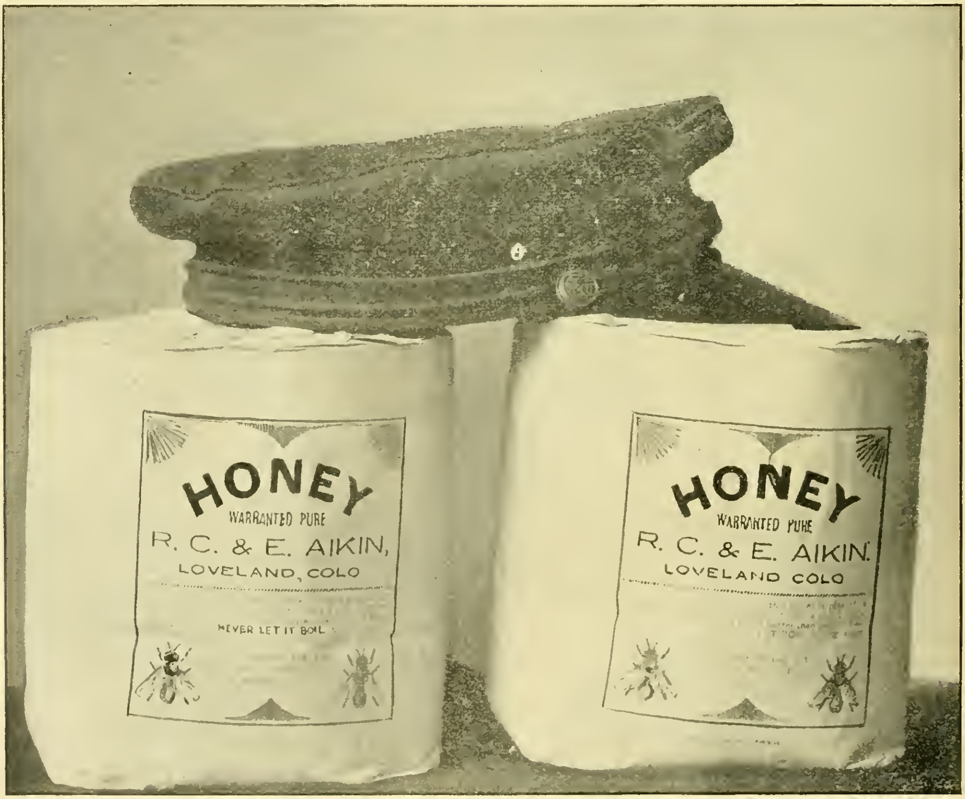
Third, will it be necessary to have the bees fastened in with wire cloth to keep them in the hive if the temperature is 60 or nearly so? A. J. Kilgore.

Bowling Green, O.

[Dr. Miller replies:]

The editor of Gleanings was responsible for my having the furnace put in the cellar, but he was not responsible for its being put in so late that the bees could not be cellared until Dec. 8, after enduring a temperature of 8 below zero without any subsequent flight.

I may remark, in passing, that that furnace is cataloged, not among the common but among the great blessings of this family. Common courtesy might have demanded that, when Mr. Root was here visiting, he should have acquiesced in existing domestic arrangements; but uncommon courtesy impelled him to insist that we have a furnace, and I here and now record my debt of gratitude for that insisting; for without it the furnace would not yet have materialized.



AIKIN'S TEN-POUND CANDIED-HONEY PACKAGE.—SEE EDITORIALS.

As reported in "Forty Years among the Bees," the bees did not have a fair chance, for they were put in after undergoing considerable confinement, and the winter was unusually warm. To make matters worse, considerable smoke was allowed to escape in the cellar during the first days. One colony was reported as being directly under a hot-air pipe, only three inches below it, a thermometer laid on the hive registering 70 degrees. This was purposely left to await the outcome. Toward spring I went to see how it was faring, and was somewhat surprised to find it dead. Examination showed it had starved to death! The possibility of such a thing had not occurred to me, but I suppose the heat made it consume more stores.

The final result was, that out of 199 colonies put in the cellar only 124 entered upon the harvest. How much better they may do another winter remains to be seen.

Answering your questions in order:

1. I don't know. I think you can. You will have the no small advantage that with that temperature you can have the cellar open for air at night, if not by day, and pure air is an important matter.

2. My experience has been that bees do not suffer from such disturbance to any great degree.

3. No, the bees will not be uneasy enough for that. Even though they should be uneasy, fastening them in would only make a bad matter worse. If a bee becomes diseased so it wants to leave the hive, it is better out than in. If it can not get out, the effort it makes to do so will only stir up the others. By no means think of fastening bees in their hives in winter.

Marengo, Ill. C. C. MILLER.

THE CACTI OF ARIZONA FOR HONEY.

I am seeking information regarding the practicability of bee keeping with cacti as the honey-producing plants. As nearly as I can find out, the harvest could be made almost perpetual, and the Arizona climate would give easy wintering. Millions of acres could be obtained for a song, and my idea would be to select and plant such cacti as would give the longest harvest. Once planted, Mexican labor would take care of them. I should like to have some idea of what has been done in the way of bonanza bee-farming, and what the profits may be under favorable conditions.

C. R. TINSLEY.

Black Diamond, Ariz., Oct. 15.

[I made a number of inquiries with regard to the feasibility of getting honey from cacti that grow in Arizona, but was assured by the veteran bee-keepers of the Territory that, while some honey is secured from that source, and while some individual plants invariably yield a good big supply of nectar, the amount in the aggregate is too small to give the plants any importance as a source of honey. Of course, I understand there are a great many different varieties; but I was told that there are no cacti of any description in the Territory that could be ranked as honey-plants.

I do not know of any bonanza in bee-farming unless it is to get in range of unlimited quantities of alfalfa, and usually there are so many bee-keepers to the square mile on such bee-range that there is no very great bonanza to any one of them.—ED.]

A PARTITIONED-OFF CELLAR FOR WINTERING BEES.

Having a furnace in the cellar I have thought it would be too warm for the bees; so I have taken a corner of the cellar and boxed it off. I have put in a floor three feet from the ground, and boxed this tight to the ceiling with tarred paper. My purpose is to make a cold place in one corner of my warm cellar. I have succeeded, I think, in getting it tight. To ventilate this place I have built it around a window that I can darken, and open or close as I see fit for temperature. I purpose to put my dozen colonies in this place. Is such a place all right? Can I ventilate it from the window? It seems to me I can. I think I have overcome any possible dampness, secured the suitable darkness, and also the right temperature. I do not wish to put the bees in just now, for we are having some fine weather, and it may continue for six weeks or more. After reading what was said on p. 928, on "few colonies wintering well in a cellar," I became a little "shaky" about my cellar within a cellar.

L. H. CLARKE.

Gardiner, Me., Nov. 2, 1903.

[The compartment divided off in your cellar, if you design to put in only about a dozen colonies, will give you very satisfactory results providing you can give the bees ventilation at night when the air is cool. It is desirable to keep the temperature between 45 and 50 degrees. If you happen to have a very nice warm day or two in midwinter, take the bees out and give them a flight, then put them back. This will quiet them quite a little. It would be advisable to give them a flight in the spring, say along in March or April, if you happen to have a warm day so that you can. Bees need more ventilation in the spring than in the fall or mid-winter.—ED.]

NON-SWARMERS, BY SELECTION IN BREEDING, PRODUCE NON-SWARMING QUEENS.

I don't want you and Dr. C. C. Miller to give up chasing the will-o'-the wisp yet. I, too, am hoping that we may breed a strain of bees that will not put in a good share of the best of their time swarming; and I want to encourage you a little.

In my twenty-two years of keeping and studying bees I never saw the swarming fever run so high as it has this year. Some got as high as seven-fold increase. I am not that kind of bee-keeper, but I got an increase of 21 from 32 colonies; but it took great care to keep them down; for, as the Missourians say, they just swarmed any old way this year. Two of my strongest and best colonies never offered to swarm, but went right along piling up the most beautiful honey. One of the queens is over four years old; and with bees swarming on every side she has never offered to swarm, and her bees have always stored more honey than any that swarmed or were shaken.

Two years ago, when but few bees in this part of the country made any surplus, the bees of this queen gave me 80 lbs. surplus honey, mostly from red clover. They are large three-banded Italians. I have always kept this queen in a ten-frame Dovetailed hive, and put on supers as I found they needed them. I have produced comb honey altogether with them.

I am raising a number of nice queens from my "old prize," as I have called her since the second summer I had her, and will test them thoroughly and report. If the young one which did not swarm this year does not offer to swarm next swarming season I shall also breed from her, for her bees are hard to beat.

J. W. Beauchamp.

Bethany, Mo., Aug. 24.

MOSQUITO HAWKS, AND HOW THEY PREY ON BEES IN FLORIDA.

I note in the Oct. 1st issue of Gleanings an inquiry as to damage to bees by mosquito hawks, which are in some localities known as "dragon-flies" or "darning-needles." These insects have been very bad in this locality for the past three years. Last year there was a period of fully a month when none of my bees dared fly. The air was filled with a predatory horde of these insatiable winged monsters, and no bee could get away to the field and home again past them. It took the little fellows some days to realize their danger, and during that time you could hardly find a mosquito hawk that did not clutch a bee. The colonies would, I believe, have been exterminated had it not been for their prudence in quitting work and hiding in the hive. Very early in the morning they could fly about a bit, some days, before the hawks awoke to their daily hunt. Immense numbers of bees must have been eaten. By the middle of June the number of the hawks had so diminished that the bees resumed their labors.

There have been smaller varieties of mosquito hawk through the summer and fall, but so far as I have observed they do not bother the bees. The large variety come occasionally in clouds. At one time last spring my wife called to me that the bees were swarming and flying, out in the horse-lot. It was a cloud of mosquito hawks so dense that at a little distance it would be readily mistaken for a big swarm.

Three years ago a man now in my employ, while cutting posts in the woods located 38 bee-trees at a distance of several miles from here. Last spring we set out to locate and cut some of them. Out of the 38 but one or two colonies had survived, and hunters and woodsmen give the invasion of the mosquito hawk credit for the destruction of almost all the wild bees in these woods. My own observations lead me to believe that they are right.

We have always had a good many of these pests, but of late years they have come in hordes, and have sometimes appeared to be migrating. Their number from day to day varies a good deal.

W. P. Marshall.

Punta Gorda, Fla., Oct. 8.

[If any of our other correspondents have before referred to the awful destructiveness of the mosquito hawks in Florida I had forgotten it. It is quite remarkable, and interesting too, that the bees should keep indoors while their natural enemies were so numerous on the outside. I should have naturally thought they would go to the fields and have been destroyed. Is this instinct or prudence that impelled them to protect themselves in the only way possible—that is, staying at home?—Ed.]

YELLOW-JACKETS.

The yellow-jackets are robbing my bees. While the stronger colonies are able to defend themselves against their attacks, they compel the weaker colonies to desert their hives. I have tried to poison them, but this will not answer. Please advise me what to do.

F. W. Knoeger.

Durango, Colorado.

[If you will excuse me I would suggest that you are mistaken about the yellow-jackets driving your bees out of the hives or doing them any damage, unless it is to worry them a little. We have often seen them buzz around the entrance, perhaps getting in occasionally, but not in sufficient numbers to do any harm. I do not see how you could poison them without poisoning the bees. I would suggest you get some Italian bees if you have not got them already. They are ever so much better to defend themselves from all intruders of all kinds. If your colonies are strong, and have good queens, I do not believe yellow-jackets can do enough harm to amount to much.—Ed.]

CHICKENS EATING QUEENS.

Have you ever known chickens to catch and eat the queens? I have seen our Plymouth Rocks catch the drones and eat them; and when a worker-bee would be taking a drone out, the chickens would eat both. The reason for asking the above question is, I had two this year's swarms robbed. The bees did not seem to make any defense at all; and on opening the hives I found no queen nor any worker brood; but there was some drone brood in each hive. Now, for the last two days they have been robbing three old colonies. I have closed the entrances so that only one bee could get in at a time; placed grass over the entrance, sprayed with water and carbolic acid, but nothing does any good. They make no defense. The yellow-banded bees are the ones that are doing the robbing.

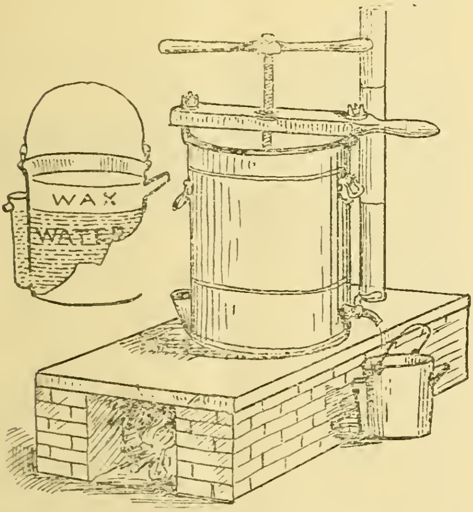
JOSIAH ZIMMERMAN.

Clyde, O., Oct. 9, 1903.

[We have had many reports of chickens eating bees, but I do not remember any specific instances where they were reported to have eaten queens. If they will eat common workers I do not see why they would not pick up a just-returning virgin.—ED.]

HANDLING THE GERMAN WAX-PRESS; A CONVENIENT WAX-SEPARATOR.

As I have learned many a good thing from other bee-keepers through GLEANINGS I wish to contribute something which I found a great help in rendering wax with the German wax-press. I have my press standing on a brick furnace, as per the illustration, the spout of the press discharging into a galvanized water-bucket, which has a tube soldered on one side. This tube is connected with the bottom of said bucket so the water which flows out of the wax-press can rise in the same as it fills up the bucket together with wax. This tube reaches up about three-fourths of the depth of the bucket where a hole is punched for an overflow when the water reaches that height. On the opposite side of the bucket, about an inch higher than this overflow hole in the tube, is another spout to deliver the wax into any receptacle you might choose to cool your wax in. The benefit derived from this arrangement is that you get your wax almost perfectly free from all impurities, which will settle in the water before leaving the spout. I use eight-inch milk-pans for the wax to cool in, which hold about 5 lbs. of wax. I have melted about 145 lbs. of wax out of odds and ends and cappings this season, and this arrangement gave me so much satisfaction, working automatically, that I thought it might benefit some one else.



Pomona, Cal. M. R. KUEHNE.

[An arch or stove outdoors will be much preferable to the good wife's stove in the house. The average man if he attempts to render wax, will be pretty sure to make a mess of it, either on the stove or on the floor. For some time we have contemplated putting out a gasoline-burner that can be applied under the German wax-press so that the machine can be handled anywhere outdoors or in any room where a "boil-over" or a "spill" would do no particular damage. In the mean time it is very easy for a bee-keeper to rig up a simple little arch outdoors which could be pressed into service whenever there is a job of rendering wax.

Your precipitating-pail for separating the wax from water is a very good idea, and perhaps it may be worth while to get up something of this kind and offer it to the public.—ED.]

WIRING FRAMES.

When wiring frames, the tendency of the wire to misbehave itself, and thereby cause inconvenience to the worker, may be obviated almost wholly by stretching it. Taking the spool in one hand, seizing the end of the wire with the pliers, unwinding from the spool about five feet, and then subjecting the wire so unwound to a moderate strain, it will be found to give a little, after which its behavior will show a decided change for the better. With a little practice one can tell nearly enough what length of wire will be required for a frame, and thus be enabled to rid himself of the care of the spool by breaking the requisite length off.

Whitby, Ont., Can. N. O. EASTWOOD.

[We make it a practice to wind our wire over a board that is just half the length of the wire necessary to complete the frame. Two rubber bands are slipped around each end, and with a pair of shears we cut all the strands at one end of the board. The wires will then be exactly the right length.

I do not quite understand why stretching the wire *before* threading it through the frame should make it any better, but I can understand why stretching it *after* it was in the frame might remove the buckling tendency.—ED.]

LEACH'S BOTTOM-BOARD FEEDER.

In your editorial in regard to my feeder, you say it is too expensive. Well, not so much so when you live in a timber country as we do here; besides, we make it in two pieces of six-inch plank, and cleat together; and as for the checking, I just dip the ends in hot beeswax, and cleat across the ends. With ordinary care it will last, I believe, 20 years. However, a cheaper plan would

be to use inch bottom-boards with saw-cuts in, and let them project at the back of the hive. The first one I made, eight years ago, is in use to-day. L. T. Leach.
Orillia, Ont., Can., Nov. 2.

[The device can be cheapened in the way stated; but I still think it would be too much of a good thing—too expensive.—Ed.]

DO BEES KEEP QUEENS FROM LAYING?

I was asked by an old bee-keeper how bees manage to keep the queen from laying. He said he noticed (in observatory hives) that the worker bees gather around her in a circle with heads toward the center, thus keeping her inclosed in the middle. This was something new to me. How is it?

When a queen is superseded do the bees rear the new queen from a natural cell (same as in swarming), or from a forced one? If from the latter, are not all queens from superseded colonies forced queens?
Goshen, Ind. H. J. Schrock.

[There are seasons when the queen stops laying under the impulse of instinct, as for instance in winter or during a severe drouth. In some instances the workers regulate the amount of brood to suit the peculiar conditions by destroying the eggs already deposited; but we have never noticed them actually preventing the queen from performing her functions.

As a general rule, supersedure queens are reared from embryo queen-cells about the same as in a case of swarming. This, however, is not invariably the case, as we have known of instances in which the supersedure cells were removed so often that the bees started building them over the larvæ in the worker cells. The general rule is that they proceed as in swarming.—Ed.]

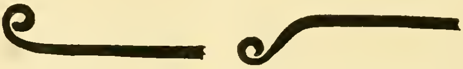
MORE DRONE COMB FROM WORKER FOUNDATION.

Talk about bees making drone comb out worker foundation, p. 841, I can go you one better. This last spring I had one colony that made drone comb out of a *full-frame worker comb*. Said comb was at least three years old, with only a few patches of drone comb on the edges. When I discovered it, it was so full of sealed drone-cells on *both sides* that I estimated the worker-cells left on both sides together did not amount to over *four square inches*.
Fredericktown, Mo. Jas. Bachler.

[This is quite a remarkable incident. I do not remember to have seen a case like it before.—Ed.]

WHEELBARROW-SPRINGS — A SUGGESTION.

Mr. Root:—I saw on page 391 Mr. John W. Murray's article on the wheelbarrow, and I am tempted to say to you that I too would like to see the Daisy wheelbarrow improved in this way. Have the wheel made two inches smaller; the springs lighter, so as to act as springs; have the springs turned up instead of down. This will throw the weight of the load on the wheel instead of on the man who is wheeling. The wheel being smaller, with the same length of spring as at present, one can clean the dirt off the wheel much easier. Lighter or less highly tempered springs can be used by letting the springs press up against the woodwork of the shafts. I want to get a wheelbarrow next spring, and I wish to speak in time. Of course I do not expect you to take to my way of thinking unless you see it is for the best; but I will gladly pay the difference in cost.



You say in your catalog that the Daisy wheelbarrow will carry 500 lbs. Don't you see that a set of springs that will carry such a load are no springs at all under a lighter load? but with the springs as they are, they ought to be bent the other way. My wheelbarrow springs snapped badly in frosty weather; in fact, they broke like pipestems; but in warm weather they stood the test of weight very well. There is too much weight on the man who is wheeling, and not enough on the wheel.
Wm. H. Eagerty.
Cuba, Kan., July 30, 1903.

[Your bent-up spring would have less elasticity and less strength than one bent the other way. The small wheels would not be as good on a rough path or road as the larger ones; that is to say, on ordinary uneven ground, a large wheel is much more easy on combs than a smaller one; and, after all, the small wheel and bent-up spring only enables you to handle a little heavier load providing the roadway or path or ground is fairly even. Why not use the larger wheels and take less load and make more trips? Try the experiment some time with a small paddy wheelbarrow, with a small wheel, and then with a modern wheelbarrow with a large wheel. I think you will find the push or pull, or, technically speaking, the "draw-bar pull," would be much greater in the first case mentioned than in the last; so that what you actually save in weight would be more than counterbalanced in the extra strength exerted to push the small wheel over obstructions. The same problem is encountered in the wheels used in automobiles. But the objection to small wheels is overcome by the use of pneumatic tires, into which an obstruction may crowd without materially impeding the progress of the vehicle.—Ed.]

NOT A POISON.

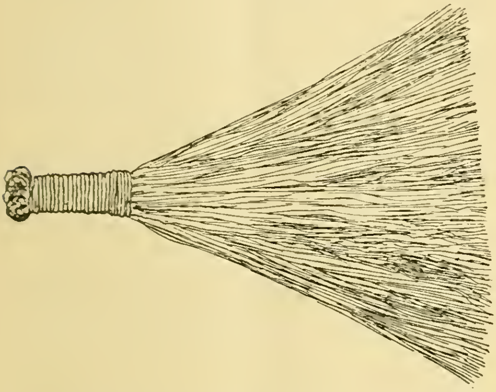
Referring to that brood Mr. Keating sent you (p. 842), you may recollect that, prior to receiving it, you received a similar sample from me. You communicated with me by letter, for which I am much obliged. You have expressed your opinion as to the likelihood of death by poison in both cases.

This disease has been among my bees for fifteen or twenty years. I have cured it from time to time by simply giving the affected colony a healthy vigorous queen. In my opinion it is caused by excessive heat. When the thermometer registers about 110°, bees, brood, and queen alike become seriously affected—the latter often diminishing in size to such an extent that her abdomen is hardly larger than one-fourth the size of a normal queen. These affected queens seldom live through winter. The proof of my theory is, that introducing a healthy queen generally stops the progress of the disease. MOSES BRAY.

Morgan Hill, Cal.

A HEMP BEE-BRUSH.

The article on whisk-broom bee-brushes in GLEANINGS and the *Amer. Bee Journal* was read with considerable interest. While spending the past season in California with several large and experienced bee-keepers I was taught several valuable lessons. One was the making of a bee-brush that is, in my opinion, the acme of perfection. Take twenty inches of one inch hemp rope; double together, and bind with stray threads of hemp or foundation-wire to the length of four inches, for a handle; then fray out the ends of your rope and soak it half an hour in water, and you have a brush that will neither disable a bee nor mar in the least the cappings. When dirty, or daubed with honey, you can wash and wring dry, like any cloth. I have used both whisk and hemp brushes in the management of 500 colonies of bees, and I would not use any but the home-made article. By the pressure of your thumb you can regulate the width of your brush so as to cover a Langstroth frame at one stroke. You can credit Mr. C. I. Graham, of California, with the above method, for he is the gentleman who taught me. GEO. HERRICK.



West Pullman, Ill.

SKUNKS — HOW TO DESTROY THEM.

I want to say a few words relative to trapping skunks in bee yards or elsewhere, and the disposition of them after being caught. Fasten the trap-chain to the end of a ten-foot pole or board, heavy enough so they can not drag it away. Then, instead of putting them in a nail keg (in which case you would have about 99 failures out of every 100 skunks, or shooting them, in which case, if you try it, you would think there were at least 200 failures out of every 100 trapped), approach the rear end of the pole or board cautiously, and fasten a rope to it, five or six feet in length. Then start off slowly, dragging skunk and all after you. You can drag them any distance you see fit, and there will be no odor. Then you can dispatch them in any manner you wish. But, kill them as you will (unless you take hold of the pole and dip them in water deep enough to submerge them), there will be odor. The object of this method is to get the odor, if any, a safe distance from the house or bee-yard. Try this, and see how easy and sure it is.

HOW TO PREVENT SWARMING.

I also wish to say a few words in reply to the question as to how I prevent my bees from swarming, and where one can get a non-swarming race. I have thought of this a great deal; and the more I think of it the more firmly I am convinced that we all have non-swarmers if properly manipulated. In other words, I believe that, instead of its being natural for bees to swarm, it is the reverse. Of course, there are exceptions to *all* rules; but swarming according to nature is the exception (barring Carniolans). Give your queens plenty of room as needed at the proper time, and the workers the same, and I will guarantee the *rule* will be no swarming — at least in *this* latitude. I presume these few remarks will cause the *bee-keepers* to swarm; but try this simple method and you will hive yourselves automatically.

Say, friend A. I., don't you think it would have been better to *give* that poor Cuban boy a little honey, and let him keep his dime also, even though it was Sunday—page 853? ELIAS FOX.

Hillsboro, Wis., Oct. 28.

KILLING SKUNKS; SHOOTING WHILE CAPTIVE NOT TO BE RECOMMENDED.

I was reading on page 847 regarding Mr. Green's method of trapping skunks out of the apiary; also what you had to say about it. Now, let me tell you right here that you don't want to use a gun of any kind if you don't want to come to grief, for you can not kill a skunk so dead that he will not throw his scent. The inexperienced would naturally think you could; but I know this as a personal fact, as I have killed hundreds of them. Mr. Green's plan is all right if you just keep your head. Another good plan would be (if there is no danger of any thing else getting in) to set a snare attached to a springpole, and then in the morning you have Mr. Skunk hung up high and dry by the neck. CHAS. E. GATES.

Springfield, Pa.

MOVING BEES A SHORT DISTANCE.

We have had satisfactory results in moving bees about a quarter of a mile. The hive was closed with wire cloth, before sunrise, at the same time giving smoke and a good shaking; then moved to new quarters, on the way striking the hive occasionally with a stick so as to frighten them thoroughly and cause them to fill themselves with honey, and finally bumped them down on new stand. Very few bees returned to the old stand. This idea was taken from an old number of the *Australian Bee Bulletin*.

Hahndorf, So Austr. J. J. Darby.

AN EMBALMED SNAKE.

Of late I have seen in Gleanings some talk about bees covering any thing dead in the hive. About three years ago I had a very large swarm in a big box that frames would just fit in. One day I found on the bottom-board a long crooked ridge of wax and propolis. Upon opening it I was surprised to find inside a snake about 8 in. long. The bees must have stung it to death and then covered it up. There was no smell, and the snake was preserved in good shape.

Mayfield, N. Y. G. W. Haines.

THE FORMALDEHYDE CURE.

I still use formaldehyde. I have been making some experiments with it; and as soon as spring comes and I can have another trial, if it proves as satisfactory as it did this season I will write it up for Gleanings. I took 9 first premiums at our county fair, amounting to $22. One first premium was a nucleus of black bees with queen, treated for black brood, on a full set of combs 18 days before, and not a dead larva in the combs. Have made several trials already, but would like to try it again before writing.

Mayfield, N. Y. G. W. Haines.

HOW TO USE FORMALDEHYDE SO THAT IT WILL CURE.

Seeing an item in Gleanings for Oct. 1 in regard to formaldehyde not being a sure cure for foul brood, I will give some of my experience with it, as I have used it in my business as inspector of apiaries for Santa Barbara Co., Cal.

At first I did not have the success that I desired; but I did a little differently each time, and finally have come to the conclusion that it will cure foul brood and black brood if rightly used. It has done the work all right, as I have used it of late. I have treated several apiaries, varying from two to over a hundred colonies in each, and have cured all that I have treated under my present system. Now for my mode of treatment.

I use a Goodrich atomizer No. 4, and formaldehyde, equal part with water. Go to the hive to be treated and raise the body of the hive in front enough to work so as to spray the liquid on to the bottom-board. The bottleful will be enough for about six hives for one application, which I make three as a course of treatment. I make the applications about two weeks apart, and apply it cold, and do no more than to spray it on to the bottom-board. If it is sprayed on to the combs it will kill all that it touches. The gas dries up the diseased matter in the cell, and the bees clean it out and make every thing shine, and the colony soon becomes strong and prosperous; but the hive must have ventilation or the gas will asphyxiate the bees, and that makes a bad matter worse. If the hive is tight the cover must be raised by placing something between it and the top of the hive, about ¼ inch thick. After spraying the liquid on the bottom board, set the hive back in place and the work is done.

Lompoc, Cal. Geo. E. Hinkley.

NEW LIGHT ON BULK COMB HONEY.

On page 837 I notice this remark: "Or we possibly may have to get up some scheme whereby chunk or bulk comb honey can be divested of every suggestion of adulteration, so that the general public in the cities will buy it the same as it will section honey."

Answer to this question simply rests on when, if ever, the National Pure food Bill of the last Congress is enacted into law, and enforced. If we can get that law, or a similar one, the adulteration of honey will be a criminal offense, and we can then print on our labels the government law on the question, stating that the goods are put up under and are subject to inspection and analyses under that law.

Again, if we can get on to some means whereby we can pack honey so that it will not granulate, and can assure customers that, when they open the cans of honey, they will be liquid, just as when taken from the bees.

H. R. Boardman says he has found a method that will solve the problem, and that he has been at work on it especially because he wished to apply it to the packing of bulk comb honey. He has promised to make it known at the earliest moment he feels he can do so, and all we can do is to await his action.

However, if in packing bulk comb honey you will heat your extracted honey and pour it on the comb while warm, and then seal the cans air-tight, you will find that it will keep at least a year just as it was packed. Now, then, there is more money in bulk comb honey at 10 cts. than there is in section honey at 14, because it takes less expensive equipment, less work, less freight, less loss by breakage in transit, and you get nearly double the honey you would get if producing section honey.

As a package for bulk honey, there is nothing better than the friction top cans as made by the American Can Co. for their Texas honey trade, the same being the standard adopted by Texas bee-keepers.

They are at once a shipping-package and a retailer's package. We would urge the bee-keepers, if they begin the production of bulk honey, to insist on having those cans so that there will be a standard in the United States the same as there is already in Texas.

I believe that, when we can get a pure-food law, and put up comb honey in a way that will not granulate, we have the honey of the future, and, as I have said before, I am looking to the time when it will be universally produced. H. H. HYDE.

Floresville, Texas, Oct. 6.

OUR HOMES,
BY A. I. ROOT.

Let no man judge you in respect . . . of the sabbath.—COL. 2 : 16.

Six days shalt thou labor, and do all thy work ; but the seventh day is the sabbath of the Lord thy God.—EX 20 : 9, 10.

Some of our older readers may remember that I have once or twice considered briefly the matter of having Sunday on the wrong day of the week. In consideration of the fact that so many good friends who take GLEANINGS hold that Saturday is the right day, instead of the day that the most of the world has chosen, I had thought I would not take the subject up again. God knows I do not wish to hurt the feelings of anybody; neither do I wish to dictate to others how or on what day they shall worship God; but because I think there are quite a few who would like to hear my opinion on the subject, I will go over it briefly again.

Since we talked about selling honey on Sunday I have had three letters, insisting that the good brothers can sell as much honey on Sunday as they like, without transgressing any of God's laws. One of the three took me to task so roughly, and looked down on me so patronizingly, I filed his letter away without answering it at all, and that is something I very seldom do. Where a writer asks for a reply, or evidently expects something in the way of recognition, I very rarely neglect giving him an answer. The letter I append below seems to be written in a very good spirit, and I take pleasure in submitting it:

A. I. Root:—My dear brother, I hope you will pardon me for differing with you on a point of theology. It seems to me that you are a little off when you say that Sunday was set apart by God as his holy sabbath. I understand the Bible to teach that he set apart the seventh day, or Saturday, as it is now called, as his sabbath, and commanded all men to keep it holy. Christ and his apostles evidently kept it, and I can not find any place in the scriptures where God ever changed the day, or sabbath, or authorized any one else to change it. If you know any place in the Bible that authorizes such a change, you will greatly oblige myself and others if you will point out the chapter and verse. E. STINSON.

Butterfield, Ark., Oct. 8.

Dear friends, if you expect me to take up this matter point by point you will be disappointed. It would be out of place in a journal like this. Perhaps I might as well say here that I can not take space for reply unless the replies offer something I have not heard before. I have read more on the subject than I ever expect to read again. Yes, I feel almost like saying I have wasted more time in reading the printed matter the good friends have sent me than I can afford to waste again. I have hunted up references from my Bible; but I hope these friends will excuse me when I tell them there is nothing in *my* Bible, from beginning to end, that would indicate to *me* the great Father would be pleased to have us change our present Sunday to Saturday. My opinion is he would be *displeased* to have us waste our time on so unimportant a matter. If these good friends really insist we are making a great mistake in having our rest day on the first day of the week instead of the seventh, then I would suggest that the shortest and easiest remedy would be to call Monday the first day of the week, and then Sunday would be the seventh. That ought to suit everybody all around; but, if I am correct, these zealous friends of ours stoutly *reject* this solution of their difficulty. I say *their* difficulty, because a very great majority of the Christian world does not see *any* difficulty at all. You will remember how the Savior rebuked the Pharisees for their foolish notions about the sabbath. You will remember, too, what he said about straining out a gnat and swallowing a camel; and it really seems to me as if this were a fair illustration of making so much ado about Sunday being the wrong day when this world is actually so full of *sin* and *crime*.

Monday is the first working day of the week; and I was a grown-up man with considerable intelligence (you may smile, but what I say is actually true) before I knew that people generally called Sunday the *first* day of the week. Well, now, if you *prove* to me that the whole wide world recognizes Sunday as the first day, and may be the laws of our land declare it so, it would not make one bit of difference with my opinion in regard to the matter. I would still insist that it would be a thousand times easier to make Monday the first day of the week than it would to have people generally the world over throw every thing out of joint in an effort to have Sunday on Saturday, especially with the view in mind that the great God above, the Creator of the universe, would be *pleased* by such a revolution. When the matter was first brought to my attention, years ago, before I was a Christian, I said the peculiar position taken by the seventh-day people had no *reason* back of it. All of God's laws are founded on reason and common sense. If we do not see it at once, our Bible students and our ministers of the gospel can give us information in regard to the whys and wherefores. Let me tell you a little story.

When it first became fashionable to use a fork instead of a knife to convey food from the plate to the mouth, I rejected the new-fangled innovation. Some of the younger people may smile. I can imagine some of the children who read this Home paper will say, "Why, mother, was there ever a time when people ate with their knives, putting a knife to their mouth instead of using a fork?"

If the mother is sixty years old or more she will reply, "Yes, my child, I can remember quite distinctly when everybody put the knife to the mouth until the new custom came around."

Well, as I said before, I rejected the new custom because I declared there was no sense nor reason in it. But Mrs. Root said, "Why, my dear husband, there is the best sense and reason in the world for this change. Your knife is used for spreading butter on bread. If a butter-knife is not on the table it would not be ill bred to take some butter with your own knife when it is passed. Would you like to see somebody take his own knife out of his mouth and cut off a slice of butter from the butter plate? Or where there are individual butter-plates, as is usually the case now, would you throw away all the butter left on the individual plates? Now, if all those at the table took butter with a knife that had never been placed in the mouth, all the butter in these little plates could be saved, and it would be as good as ever. Do you not see the good sense that prompts this change in the manner of eating?"

I owned up at once, and from that time forward I have carefully abstained from putting my knife into my mouth, using a fork or spoon instead. When the matter was first brought to my attention, I thought the new fashion was like many other "whims," or "style," without sense or reason to support it. Just now physicians will tell you there would be great danger of conveying contagious diseases if everybody followed the practice of taking his knife out of his mouth and putting it in the butter that might be used by some other person.

Now, if the good friends have ever brought forward any sort of *reason* for the change they propose, or if they have ever shown us that they would accomplish any thing for our physical or spiritual development, I have never yet seen it. They simply say we must do it because God says so. In the first place, God has *not* said so in his holy word to me. He does say very plainly and distinctly that we are to work six days, and keep the seventh holy. Travelers who have been all over the world will tell you that the world has not been able since the creation to have Sunday exactly in unison the world over. They could not have it at the same time, for a part of the earth would be in the darkness of night. And then there might be a discussion that could never be settled as to *what* day was the one God meant.

Now please forgive me, friends, if some of you think I am a little irreverent in what I say. If the Bible did say, or could be made to say, that it was God's wish that we should keep Saturday instead of Sunday I should lose my faith in the Bible, and I should lose my faith in God. Do not fear, dear friends. God has never yet said any thing to his children that is unreasonable. The old patriarch Abraham said, "Shall not the Judge of all the earth do right?" And the great Judge did at that time do right, and has done right ever since. I am not a theologian; but one of the ablest scholars in theology that it was ever my privilege to have as a friend. said something like this: "The great schools of theology agreed, ages ago, that *reason* stands back of God." It is the heathen that our missionaries find in the islands of the sea who have rigmaroles of senseless rites that they go through with to appease the wrath of their gods. It is not the United States of America, nor any Christian nation.

Now, please do not think from the above that I have any but the kindest of feelings toward those who hold these peculiar views. God knows I would not say any thing nor do any thing to hurt their feelings in the least; and I am glad to say that many who hold these views are very charitable toward other Christian people. You will remember that I once stopped with a good brother in Florida, who kept Saturday as a rest day. Somebody asked me, before I called on him, what I was going to do about it. I said at once that I should really enjoy conforming to the custom of these friends I was visiting. Of course, I talked the matter over with my host; and as we finished I said, "Now, friend K., I have joined with you in worshiping God according to *your* custom. Should you ever come to Medina, which I hope you will, may I not expect that you will go with me to church and Sunday-school, and unite with us in remembering the sabbath day in keeping it holy according to *our* custom?" He replied that he would, of course; and later in the day I found that he was in close touch with Christian workers all around him who did not hold his views.

Here is another kind letter which I wish to submit:

Mr. A. I. Root:- As this is my first year's trial of GLEANINGS I wish to express my appreciation of the same I enjoy reading your Notes of Travel, and also Our Homes; and under the heading of "Remember the sabbath day to keep it holy," I believe you are a man who is trying to make the world better by your life; yet I fear there is somewhat of a compromising spirit when you would encourage Sunday traffic. Now, sir, is it right to do wrong to gain thy brother? I say, no. Christ, when he went to the temple and found them buying and selling, did not say, "We had better let go for this time for fear we lose our influence," but he drove them out. I believe we must stand out firm against wrong every time, and leave the results in God's hand and he will take care of his own cause. I probably take a different view of this matter, as I see so much of the compromising spirit in the church of to day, being so much like the world, having a form of godliness but denying the power thereof. I have felt thankful when reading the temperance sentiments expressed in GLEANINGS; and may the Lord bless you in your good work on this line. I am almost a beginner in bee culture; but I have learned at least some from GLEANINGS, and I hope the Lord will spare your life to years of usefulness.

Athens, Ont., Can. R. M. BROWN.

You will observe that the dear brother who writes the above thinks I am in danger of *compromising* with evil. Now, friends, as I see it, we absolutely *must* put a common-sense interpretation on God's command to remember the sabbath day to keep it holy. Let me give you an illustration.

Our postoffice at the cabin in the woods is two miles from our home. The meeting-house where we hold our Sunday-school is one mile from home. During the past summer a postal box was set up right close to the church. It is the nearest place for us to mail our letters. Is there any thing wrong in taking the letters when we go to Sunday-school and dropping them in the letter-box? Now, there may be some among the readers of GLEANINGS who will say we should not go near the letter-box on Sunday, not even to drop in a letter. Better go back home and travel a mile and back over the hills Monday morning. Perhaps a *few* will say this — may be none at all. In the above I have supposed, of course, that the cards and letters were written on Saturday and mailed on Sunday. I very rarely write to anybody on Sunday, not even to my own brothers and sisters. Perhaps I am more conscientious in this than the most of you. Mrs. Root does not feel about it as I do, and she often writes long letters to her absent children Sunday afternoon. I do not think she will mind my telling it, because so many other good Christian people do the same thing. But writing letters is a great part of my daily work on week days. I try not to *work* on Sunday if I can help it. Well, once last fall the man who owns the thrashing-machine said he was ready for me to draw in my buckwheat. I had two men and two teams engaged to start the work early Monday morning. Saturday night, after dark, he sent his little boy to say he could not do our thrashing at the time we had planned. Farmers get up early in that region, even before daylight, and the man would be along with his team a little after daylight, and he would have to go back home again when he was greatly crowded unless I got a message to him. Should I go over Sunday evening and tell him of the change in arrangements, or should I get up Monday morning, before daylight, and go by the light of a lantern? There was no other way. I could send word by the children at Sunday-school concerning the different arrangements about thrashing; but that would be "doing business" on Sunday.

At another time, a postal card was brought to me at Sunday-school, that required an answer by the very first mail that went out. Somebody else would be greatly inconvenienced unless I got that postal card out. Should I write on a postal card that I happened to have in my pocket, and drop it in the letter box, or should I make a trip of a mile early Monday morning? I can not remember exactly now just how I managed to avoid doing even a very little business on Sunday to save time and annoyance to others besides myself on a week day. My impression is I got up before daylight in the one case, and walked two miles through the woods, with a lantern, rather than do business on Sunday. In the other I think I studied up some way to avoid writing a postal card and mailing it on Sunday.

In the above instances some of you will say I was foolish for being so conscientious. There are others who may say, and with good reason, that I was on the safe side in avoiding even the appearance of evil by way of transacting business on God's holy day. But the point before us is not whether *I* did right or wrong. I am of no more consequence than the rest of the world, unless, indeed, we might say that in the position of a Christian writer I should be very careful about the example I set and the precedent I make. May God help me to keep this in mind. The main point to us all, as citizens of this present age, as citizens of this Christian nation, is that God may help us all to use the best *common sense* he has given us in deciding just where our duty lies.

Years ago I read a little fable about some good people who were trying to move their church. They were working with crowbars and blocks, and toiling and sweating. Some bystander asked them why they were moving the church. The reply was, "There is a dead snake back if it." When he suggested it would be much cheaper to move the snake, even if it was a rather repulsive job, than to move a heavy meeting-house, they all stopped work and acknowledged that his way would accomplish all that was desired, but they "hadn't thought of it." Now, it seems to me that some of the seventh-day friends are very much like the poor people who were going to change the location of their meeting-house. My opinion is that no one can lay down cast-iron rules for observing the sabbath. I am satisfied it is God's wish that the whole wide world should cease, as far as possible, from week-day traffic. We should especially try to avoid going ahead with any thing in the line of personal gain. Jesus told us repeatedly that "it is lawful to do well" on the sabbath. If our neighbors are sick or in trouble, it is always in order to let our own worries and cares go and help those neighbors. If they lack food or clothing or medicine or a nurse, or the services of a physician, get them for them. If you feel like getting up in the morning and looking after the children in your neighborhood who will probably go to Sunday-school if invited, I believe that God is pleased to have us do such work, even though we may feel very tired before the Sunday-school is over. If you have some letters that should be posted, and you are going past the post-office or postal box, take them along. I would not, however, put off going to the postoffice Saturday just because you could do it on Sunday and thus save time; and it behooves us to remember that in deciding all matters of this kind we are not deciding questions for our neighbors, nor for the whole world to criticise. It is before the great all-seeing eye of God the Father, who knows even our inmost thoughts. "God is not mocked; for whatsoever a man soweth, that shall he also reap."

The writer of the second letter asks the question, "Is it right to do wrong to gain a brother?" and I think I can agree — in fact, perhaps I am safe in saying it is *never* right to do wrong; but I would add I do not believe God will lay it up against us as being "wrong" if, under certain circumstances, we let a neighbor have a small amount of honey and take the money for it, even if it *is* on Sunday. Remember that Paul says, "I am made all things to all men, that I might by all means save some." When Jesus found the Jews buying and selling, and were greedy for gain in the temple, he found a great public wrong that was going right along day after day and year after year. It was not the case of a solitary person who did not know or consider he was transgressing God's commands. There was nothing else to do than to drive those sabbath-breakers out of the temple. Few of us are called on to turn people out of doors like that. We are, however, called on, every one of us, who professes to be a follower of Christ Jesus, to preach the gospel in season and out of season. I am sure it is far better to make a mistake, or say a little mistake, now and then, in deciding what we shall or shall not do on the sabbath day than to sit down and do nothing. Whenever a neighbor comes to your home you have an unusually good opportunity of winning him to Christ. The circumstances are quite different from what they would be in the case of your going and hunting him at his home. Missionaries tell us that in foreign lands they sometimes have to work months and years to get a hold on those who are prejudiced against them. They are always delighted when somebody calls and wants something. When a man wants something, and it is in your power to supply his wants, he is in unusual readiness to listen to you. When I am traveling I am glad of any opportunity that permits me to form a new acquaintance. If I am obliged to travel some distance beside even a bad man, I usually make some effort to get acquainted with him; and very many times I may be able to change his views, especially where he has mistaken ones. My conscience troubles me when I let the hours pass without saying a word to anybody or trying to do him good. Yes, my conscience troubles me when I sit still or spend too much time in reading, even on Sunday; but I am always happy when I find an opportunity for cheering and encouraging some one in ways that are right. Those who judge by outside appearances might think I hadn't any proper reverence for the sabbath; but God knows my heart fully, and the hearts of those to whom I am talking; and when I feel the approving voice of the Holy Spirit, I do not feel much troubled.

A word more about selling honey on Sunday. Our seventh-day friends have not said so, but I presume they would object to selling honey on Saturday. Suppose a man who knew nothing of their peculiar views should go eight or ten miles on Saturday for some honey. Would they tell him he could not have it? Or suppose one of their number kept a store. He *could* not sell on Sunday, because few people would buy of him except those of his own belief; and he *would* not sell on Saturday because it is his sabbath. Could he compete with other storekeepers if he shut up two days in a week? And this reminds me that many people indicate to the public at large their views on these matters by putting up little signs. At the town of Bingham, near our cottage, there was a notice saying, "Positively no goods sold on Sunday." In passing county infirmaries and other public buildings I often see notices to the effect that visitors will not be received on Sunday. I am not quit sure, but it strikes me I once saw a little sign in a bee-keeper's dooryard something like this: "No honey sold on Sunday." This would answer two purposes—everybody would take it for granted that he did have honey for sale on week days; and they might also wisely conclude that this bee-keeper was a good man and tried to do right before God and his fellow-men. Of course, accommodating a neighbor is quite a different matter from running a Sunday business. I do not believe in having butcher-shops, barber-shops, fruit-stands, nor any thing of the kind open on Sunday.

One Sunday, while in California, I purchased a five cent tablet at a news-stand; and I was promptly rebuked by the brother I was staying with for encouraging Sunday traffic. He lived out in the country, where it might be difficult to get the stationery I wanted, on week days. As we passed by a news-stand on our way home from church, without considering very much I made the purchase I have just mentioned, and I am sorry I did it. But do you not see, dear friends, how difficult it is to lay down rules for each other in this matter? May God give us wisdom and understanding, and help us that not only on Sunday but all through the week we may "do justly, love mercy, and walk humbly before God."

DRUGSTORES, SALOONS, ETC.

Friend Root:—I read with much interest your article on the "Anti-saloon League." I am with you on the temperance question. It may be that things are different in Ohio from what they are here; but with us the drugstores are the worst of saloons. A man who is able to set up a small drugstore would not go into the saloon business, as the license is too high. He will merely take out a "druggist's license," which amounts to little or nothing, and opens up, to all intents and purposes, a saloon. He may have a very small stock of drugs; but the barrel of whisky is sure to be there, and he will sell by the drink to all of those he can trust not to inform on him, and will be in collusion with some doctor who will furnish prescriptions to all others; and he will make money, and branch out into a big drugstore, buy a farm, and drive fast horses to a fine rig. This is not overdrawn, my friend, but is what I have known to be done. With you it may be, "Down with the saloons!" but with us the drugstore is far worse than the saloon. One reason is, men will go into a drugstore and take a drink, and yet they would be ashamed to be caught in a saloon. Again they will sell whisky to boys under age, which the saloon-keeper is afraid to do. The man with the "ready-made prescriptions" can sell to any one. Small towns here have two or three drugstores where one could not make more than a living out of the business if he would confine himself to the sale of drugs and medicines.

McAllister, Mo. B. HAMM.

Friend H., what you mention is true more or less all over our land; but let us not rush to the conclusion that *all* drugstores are of this class. My own brother kept a drugstore for many years, and he did a very profitable buisness, although he sold no intoxicating liquors of any sort. He did not even have a license for so doing. Of course he was severely criticised by certain persons, and I believe they went so far as to say that human life may have been lost because he refused to sell the alcohol used for compounding medicines.

HEALTH NOTES
BY
A. I. ROOT

Mr Root:—I have read with much interest what you say under the head of "What shall we Eat?" in Health Notes, page 851. As you are aware, I at one time took the beef diet cure. My trouble was acid dyspepsia (sour stomach) brought on, not by abstinence from meat, or by the eating of fruits and vegetables, but by eating too fast, masticating too little, and eating too much. My stomach had gotten into such a state that every thing soured as soon as eaten, and you may believe that I was discouraged, and that every thing looked blue. But the beef-diet treatment cured the acidity and I have never been troubled with it since—now seven years.

I think your advice in regard to plain ordinary food is good. Still, I believe that we do not know all in regard to this diet question yet; and that there are higher planes of living than ordinary hotel fare would lead to I am certain from certain observations and experiments of my own, of somewhat recent date.

I will remark that one noticeable thing in regard to lean meat is, that it does not seem to furnish muscular strength, no matter how much is used. Now, it is vital force that we want, and we want a diet that will give us muscular and nervous force. Certain writers in the health-reform journals advocate a diet of natural food—that is, nuts, grains, fruits, and vegetables in right proportion, and uncooked. We all know something about the various health foods (so called) prepared from the whole grain. But they do not stand the test, and must sooner or later be discarded. The life has been roasted out of them, and they do not satisfy nor furnish strength as an ideal diet should.

I have been greatly troubled with constipation, which of course, grows out of my earlier wrong habits. I have found that I could not live on the ordinary hotel diet for many weeks consecutively without getting all out of fix. One reason is, that, as a rule, they use baker's bread made from fine flour, and potatoes boiled with the skins off both of which articles are about as near worthless as any thing you could find excepting pastries. Some time ago I got into trouble away from home as indicated above. I decided to try the natural-food plan. I had previously discarded breakfast, and was drinking only fresh water, and plenty of it, which, of course, is the proper thing to do, and is advocated by all the reformers without exception. Well, to the test: I procured some nice white northern wheat, some seeded raisins, some large California dried prunes, some English walnuts, some fresh roasted peanuts, some nice rolled oats, and some white-clover extracted honey of my own production. The lady of the house furnished me what sweet milk I wanted. For fresh fruits I bought white California grapes or nice ripe Concords and a few pears. On account of my old trouble with acidity I am forced to avoid sour fruits and select the milder sorts. Now please study the list that I have given you. There is no meat in it; but I know by experience that it is a wonderful diet for me. I stuck to it rigidly for several weeks, and I will just mention here that I am blessed with a perfect set of teeth and can easily and thoroughly masticate white wheat. I ate some of the wheat flavored with nuts, and then for a change would try the rolled oats, which I think is one of the most delicious things I ever tasted, for a man having natural hunger (there's the rub: too many of our people never know what natural hunger is from one year's end to another, surfeited all the time with foods in an unnatural and spiced condition). I began to crave something green at one time, and ate some crisp cabbage with only a little salt on it. That was delicious too, and for my part I never expect to eat cooked cabbage again. Eaten raw it is about as near perfect as any green food you can get. But on hotel tables it is always fixed up with vinegar or some other trash that spoils it for the natural food man.

Now as to the result in my case—it was wonderful. At the time, I had charge of a railroad station that is considered a hard one, doing all the work myself. There was twelve good hours of work every day, and I was compelled to work some every Sunday in order to get out the reports on time. But I did something else. I felt so good that I got out in the evening and ran foot races with an eighteen-year-old boy, and stood on my head. He beat me in the race, but I beat him in raising a heavy weight the most times, although he is much the larger. I tell you this to show you that there was no muscular weakness as a result of the diet, which, we must concede, was not stimulating.

In order to demonstrate this, if I had time, I would be willing to come to your place and allow you to confine me to the use of natural foods for ten days, and during that time I would engage to work along with any of your men whose duties are the most arduous.

If you want to know what is the effect of a strictly meat diet on muscular strength ask Ernest. Still, in certain cases I think it is a good thing. What are we living for? Shall we eat for strength and life, or to see how much we can consume, and keep an army of women in kitchens over hot stoves from morning till night inventing, mixing, spicing, in order to minister to a perverted and abnormal appetite?

In experimenting I have made one or two discoveries that are worth knowing. As I said before, the prepared foods, such as granola "force," and the like, have had the life roasted out of them; but if you want something very fine, take Pettijohn's rolled wheat, and parch a little the same as in parching corn. Do it lightly, so that some of the grains are only just touched. Then serve hot with cream or milk. This beats any prepared food I ever saw. It has a delicious parched-corn flavor, and has not been cooked to death as the others have. HARRY LATHROP.

Monroe, Wis., Oct. 29.

Friend L., I am exceedingly glad to get the above report, especially since you have been "through the mill" on the beef diet. By the way, I should be glad to hear briefly from all who have made a trial of this diet, especially those who have made a trial through the recommendations of either Ernest or myself.

Yes, I am painfully aware that a meat diet does not furnish muscular or vital force. When I spoke about the hotel diet, I had in mind a good deal the bill of fare one gets at country hotels, say through Michigan, in towns so small they do not need to use baker's bread, and where you can get Michigan potatoes roasted with the skins on, eating the peelings and all. I notice you have tried the modern no-breakfast invention. Huber has followed this for years. One hot day when we were out in the automobile, in getting up a bad sandy hill he overworked right in the sun, and had a little touch of something like sunstroke. He said afterward this was caused by being persuaded to eat breakfast with the rest of us. Had he gone without breakfast he claimed he would not have had any trouble. It would seem, however, that discarding breakfast did not give *you* the robust health that it does the advocates of this plan.

I am glad of your testimony in favor of the nut diet. Just lately I have been made happy, and nourished at the same time, by eating five cents' worth of roasted chestnuts after a meal—that is, when I could get hold of them. When they are roasted and "taken hot" they digest with me perfectly, and give lots of strength (I wish more of our people would go to planting chestnut-trees as I am doing). Sweet milk with the fruit and nuts is all right—that is, if you live outdoors.

When you spoke about raw cabbage I had to smile. Ordinarily I can not eat cabbage at the table without great distress the night afterward. But when I am out in the field where, say, Jersey Wakefield cabbage-heads are bursting open, I can eat and eat raw cabbage, and feel happy, and it has never troubled me a particle.

The point you make about "keeping an army of women over hot kitchen-stoves, just to get a big dinner," is a grand one; such things are a disgrace to the present age. By the way, you did not tell us whether you are *now* living on grains, fruits, and nuts, or not. At any rate, I am glad to know, old friend, you are still finding health and strength and happiness, and a disposition to do good to your fellow-man that always comes with it, or *ought* to.

HOW TO CURE CONSUMPTION.

The above heading would look as if I had something to sell for the "benefit of poor humanity," etc.; but the heading is by A. I. Root, and he has not any thing to sell in the line of drugs or medicines. What he has to offer is well illustrated by the following, which I clip from the Cleveland *News and Herald:*

> E. C. Norris has just reached New York from a tramp across the continent. His home is in San Francisco. The doctors told him he had consumption. He decided to walk it out of his system, if possible, and he has walked three thousand miles in twenty-six months. Incidentally, he wore out sixty-one pairs of shoes. He didn't hurry. He saw more beautiful things in nature than he had dreamed existed. He saw broad acres and mighty mountains. He heard strange birds and talked with fine people. Those he met everywhere. They were kind to a stranger, and he discovered that there are no map limits to brotherly love.
>
> And as he walked he felt strength returning. He dropped his cough in Arizona, and lost his aches in Colorado. When he reached the great wheat-fields of Kansas he was tanned and happy, and he trudged along, glad that he was living. If looks and feelings count for any thing, E C Norris is a well man. His flesh is hard, his muscles firm, he sleeps like a baby, and his brain never slips a cog. That is what walking did for *him*. And it suggests that walking is one of the best of exercises, good for the health and the digestion, a cure for the blues, a remedy for bad nerves, a promoter of peaceful sleep, and excellent for the temper. Try it some day.

Now, friends, the above prescription would probably cure hundreds and thousands of people, even if they have the real consumption. It wants a little Christian science about it, if you will excuse the term, to give the patient faith. If he can scrape up faith enough to have some enthusiasm in testing the cure, he will get well. Perhaps some may not be able to walk more than a mile the first day. I think it would be a good plan to have some faithful friend go along with him—his wife, for instance. Of course, you would need some money, but not much more than to pay doctors' bills, after all, and some arrangement would have to be made so the patient could find protection in case of severe weather. If he can walk half a mile the first day, and rest up so as to make another half-mile the following day, his case is a hopeful one. He should have an ambition, however, to go a little further each day; and then he should give his whole soul to the work, for it is in real truth a matter of *life and death*. If it were *my* case, if my life depended on it, Mrs. Root would go with me. My work up in the woods in Northern Michigan was exactly in that line. When I first started I was so used up by a little exertion for half an hour I became discouraged, and almost yielded to the notion that I was too sick to start out in any thing of the kind. Why, I almost feel like having some slips printed for free distribution, telling how this man *walked* away from his own "funeral."

THE FUTURE OF SWEET CLOVER.

It has pained me to see the way in which many of the agricultural papers have talked about sweet clover, especially in answering inquiries. Here is something from the *Country Gentleman*, however, from John Chamberlain, that is a fair recognition of its true value:

> I never see a swampy growth of sweet clover that a man could fairly get lost in, as he would in a southern canebrake, without wondering why some one has not taken it up and made it a leader in hay-producing plants. As we see it, only one crop is produced; but where it happens to be cut down before seeding, and before the main stem becomes woody, it springs up again at once and covers the ground with the most succulent growth imaginable, and always quite indifferent to dry or wet weather. Some day we shall appreciate sweet clover.

The writer of the above item does not say outright that it will be eaten with the greatest avidity by almost all kinds of stock when they once create an appetite for it, but he seems to take it for granted it is of value. None of the clovers can be classed as noxious weeds. Of course, even rank red clover in a strawberry-patch might be called a weed; and sweet clover has perhaps created the impression that it is a weed because it grows luxuriantly, even on the hardest ground by the roadside, where red clover would not grow at all. It is really one of the hardiest and most valuable of the clovers.

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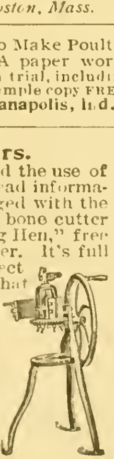

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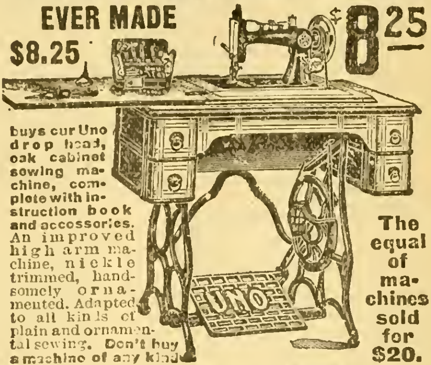

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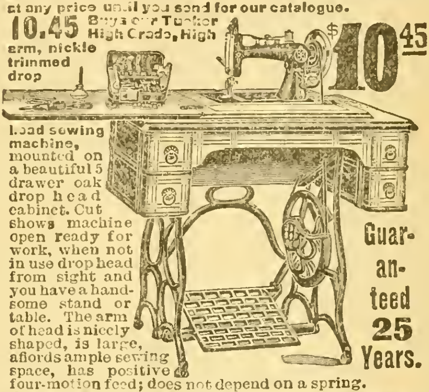

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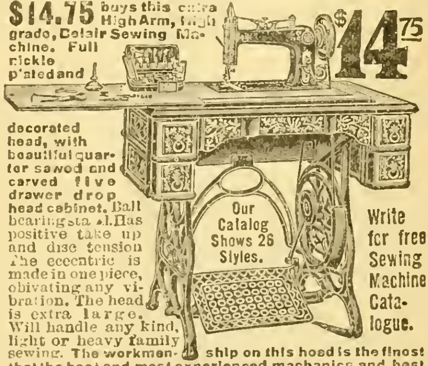
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Nickel Magazine,
Green's Fruit-Grower,
Four-Track News,
Farm and Home,
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Our Bee-Keeping Sisters—This department is only about a year old, and yet it is coming to be of great interest, especially to women bee-keepers. Miss Emma Wilson, who conducts it, is a successful bee-keeper of many years' experience, and knows what will help the women readers as well as others.

Hasty's Afterthought—This is by E. E. Hasty himself. He reviews, and comments upon, what has already appeared in preceding numbers of the Bee Journal, pointing out errors, and also commending what he deems worthy.

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From Many Fields—This department contains reports of the season, and small items of great variety, gathered up from almost everywhere. It is interesting reading, and often very practical and helpful.

Beedom Boiled Down—This has the cream of the current bee-literature of the day. It is an irregular department, appearing when there are items of importance that we feel should be spread before our readers. We are constantly on the lookout for the "cream," and "skim it off" for the benefit of the readers of the American Bee Journal.

Sketches of Beedomites—This is a biographical department We endeavor to give frequent life-sketches of the leaders in bee-keeping, and especially of those who have passed away, and who have been prominent in the work with bees.

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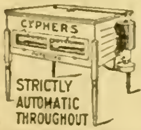

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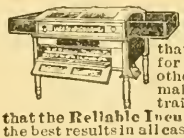

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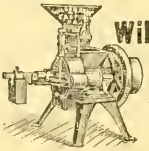

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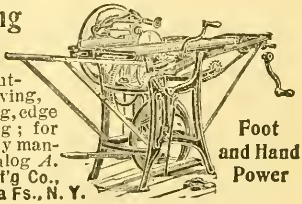

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Special Notices
By Our Business Manager.

Attention is called to G. M. Doolittle's advertisement in Wants and Exchange department, offering to sell his homestead, bees, bee-cellar, and queen-rearing business. Mr. D has a fine location, a large queen business, and any one wishing a good home and a queen-trade already built up, will do well to put himself in correspondence with him. The buildings and all the equipments are in excellent condition. It is a beautiful country site, between two lakes, and nicely situated for the queen-rearing trade. Overwork and other interests require him to dispose of a part of his business.

EARLY-ORDER DISCOUNT.

With this date the discount for early cash orders is reduced to four per cent for December. We are much gratified by the way old customers have been sending in their orders and taking advantage of the cash discount for so doing. We have shipped so far more than thirty carloads to dealers on next season's business, as well as a great many smaller orders. We have orders booked for about fifteen cars more. With the start we are getting in shipping out goods early we ought by spring to be in position to fill orders more promptly than last season We have a much larger supply of lumber, wax, and other materials, and are turning out sections at the rate of two million a month. The prospects, so far as they may be estimated at this time, are very promising for a larger trade the coming season than during the past.

CATALOG FOR 1904.

We confidently expected to have our catalog for the coming year completed a month or more ago; but one thing and another have conspired to delay it. We are glad to say that, as soon as this issue is off the press, we expect to furnish up about 50,000 catalogs which are now partly printed, and we will mail them out to our customers as soon as they are finished. Last season we did not mail any before January, so we are a month ahead of last year, as it is. If you get tired waiting for a new catalog, send in a request, which will be promptly met. We will get around to our entire list of nearly 200,000 names as fast as possible; but it will take about three months to do it with our present facilities.

HOT-BED SASH.

We are prepared to supply promptly cypress sash 3 ft. 2½ in by 6 ft., at 80 cts. each, $3 75 for 5; 10, $7 00. Bars are 1½ inches thick: outside bars, 2⅛ inches in width. We have also a supply of pine sash, 3 ft. 4 in's by 6 ft., with outside bars 3½ in. wide at same price.

SOAP THAT WILL REMOVE PROPOLIS.

(What W. Z Hutchinson says.)

"Lava soap will remove propolis from the fingers. Mr. Chalon Fowls told me this when I visited him recently. He had difficulty in finding the soap in the stores; and when his grocer finally secured a supply, Mr. Fowls bought a whole box that he might not again be without it. He gave me a cake to take home, and the boys who work in the printing-office gave it a trial, and are enthusiastic over it. It is the first thing they had tried that would completely remove the ink-stains from their fingers. Then I tried when my fingers were all stained up with pyro in developing photographic negatives, and the stains disappeared as by magic. Heretofore I have been compelled to go round for several days with my fingers stained — go until it finally wore off It is particularly adapted to the use of any one handling greasy, inky, or sticky substances. Every bee-keeper knows what a comfort it would be to have his fingers cleaned of the sticky propolis after his day's work is done, and Mr. Fowls says that it will do this. I think it would be a good thing if some dealer, like the Roots, for instance, would handle this soap, then bee-keepers, when ordering their supplies, could order a few cakes of this soap. I will add that, while the soap is such an excellent resolvent of sticky, greasy substances, it is perfectly harmless to the skin"

We are now prepared to furnish this soap at 10 cents per cake; box of 12 cakes, $1 00; 100 cakes in wooden box, $8.00. Postage, if wanted by mail, 8 cents extra.

Special Notices by A. I. Root.

THE VETERANS IN BEE CULTURE.

After I had finished my talk at the Los Angeles convention I noticed that I had entirely overlooked Adam Grimm and the great lift he gave to the bee-keeping industry; and worse still, I neglected a recognition of what the Dadants have done since away back when our bee journals were first started. I felt the more regret because friend Dadant was with us, and helped very materially to make the convention as well as our outings pleasant and profitable occasions.

THE FREIGHT DEPARTMENT OF THE PERE MARQUETTE RAILWAY.

When there is so much trouble about freight shipments being delayed; overcharges loss of goods, etc., over the average railways of the United States it is certainly encouraging — at least it is so to me — to find one great railway system that not only carries goods with promptness, but whose charges are almost always a little less than what I expected according to the agreement. Besides, your stuff is always delivered in good condition, with rarely a shortage. May be it just happens so; but my private opinion is, there is a lot of careful painstaking people connected with that road from beginning to end. I wonder where they got them. It must be they grew somewhere in Northern Michigan, the greater part of them — the place to go when you want to get strong and well, and in good condition to love your neighbor as yourself.

Wants and Exchange.

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—$5 a colony for Italian bees in 8-frame hives.
H. S. DUBY, St. Anne, Ill

WANTED.—To sell strawberry-plants. Catalog free.
NORTH STAR PLANT FARM, Cokato, Minn.

WANTED.—To sell choice alfalfa honey, in 60-lb. cans. Prices quoted on application.
W. P. MORLEY, Las Animas, Col.

WANTED.—A partner for bee-keeping on large scale. Excellent prospects, never failing honey crops.
L. MARNO, Kingston, Jamaica.

WANTED.—To sell about 8 lbs. catnip seed that will grow; $1.00 per lb. for lot; 1 lb., $1.25; 2 oz., 25 cts.
B. L. BYER, Oviatt, Mich.

WANTED.—To exchange modern firearms for incubators, bone-mills, and shell mills. Address
216 Court St., Reading, Pa.

WANTED.—To sell 3570 lbs. best white-clover extracted honey, in 60-lb. cans at 7c per lb.
C. G. LUFT, Ada, Ohio.

WANTED.—Names and addresses of those who want good books or sheet music. Ask for prices on what you want.
M. T. WRIGHT, Medina, Ohio

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
Address HENRY ALLEY, Wenham, Mass

WANTED.—The address of all who are still in need of cartons.
QUIRIN THE QUEEN BREEDER, Parkertown, Ohio.

WANTED.—To sell 15,000 lbs. best white clover extracted honey in 60-lb. cans, at 8½ cts. per lb.
WALTER S. POUDER,
512 Mass. Ave., Indianapolis, Ind.

WANTED.—To correspond with parties desiring a position to take care of an apiary, assisting in the supply trade and be useful generally. Young man preferred.
JOHN NEBEL & SON, High Hill, Mo.

WANTED.—To exchange a nearly new 2 h tread-power, power bone-grinder, and incubator for bees or empty hives, frames, or offers.
G. A. LUNDE, Wausau, Wis.

WANTED.—To sell 110 strong colonies of pure Italian and hybrid bees, in one-story 8-fr. L. hives. Wired combs built on foundation. Winter stores. Price $120. Also complete outfit cheap. No failures in 10 years.
T. H. WAALE, Sara, Clarke Co., Wash.

WANTED.—To sell 900 colonies of bees, located where the honey crop has never been a failure. A dwelling-house costing $2000, three honey-houses and a shop. Every thing up to date and complete. For particulars address
A. B. MARCHANT, Marchant, Fla.

WANTED.—To sell apiarian outfit of 200 colonies Italians in Dovetailed hives, in best white clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot colonies at $1.00 and accessories at one-half list price; combs 20c a square foot.
X Y Z, GLEANINGS.

WANTED.—To sell best type-writer for bee-keepers; practical, handy, low-priced. For exchange, Mann green-bone mill, good as new, cost $16.00. Want 8-frame L. or Dovetailed hives or extracting supers for same; extracting-combs from healthy apiary; double shotgun, 16 gauge.
HARRY LATHROP, Monroe, Wis.

WANTED.—To sell at a bargain. Three incubators, one 2½ vertical engine, good as new.
G. ROUTZAHN, Biglerville, Pa.

WANTED.—To trade a Sure Hatch 120-egg incubator, almost new, for pen of White Leghorn, Wyandotte, or Plymouth Rocks, or for Italian bees
JOHN N. MAY, Marengo, Iowa. Box 401.

WANTED.—To sell my home, consisting of 8 roomed house, cistern, and running water; barn, 24x36; shop and honey-house, 18x31, and 3 acres of land; together with my bees, underground bee-repository, queen-business, and good will. My best breeding-queens go with the bees. See pp. 295, 935, GLEANINGS for 1903. Will move about 20 rods on old Doolittle homestead, and am willing to help the purchaser a month or so for the first year or two. Reason for selling, overworked. Price $2500.
G. M. DOOLITTLE, Borodino, N. Y.

THE OVERLAND LIMITED.

Via The Chicago & Northwestern Ry. Leave Chicago 8:00 p. m. daily, through to San Francisco, Los Angeles, and Portland. It is the most luxurious train on the continent, electric-lighted throughout. Private compartment, observation, drawing-room, dining, buffet, library car; barber, bath, private reading-lamps, telephone (for use at terminals), less than three days en route to California. Two other fast trains daily. For particulars regarding rates, sleeping-car reservations, and descriptive pamphlet apply to your nearest ticket agent, or address A. F. Cleveland, 234 Superior Street, Cleveland, Ohio, or address W. B. Kniskern, Passgr. Traf. Mgr., Chicago.

Oyster Shells, 100 lbs., 60c; 200 lbs., $1. **Mica Crystal** Grit, 100 lbs., 70c. **Wise & Co., Butler, O.**

FOR SALE.—6000 lbs. choice ripe clover honey, new; 60-lb. cans.
ELIAS FOX, Hillsboro, Wis

FOR SALE.—Fancy basswood and white-clover honey; 60 lb cans, 8c; 2 cans or more, 7½c; bbls., 7½c.
E. R. PAHL & CO., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fancy and A No. 1 comb honey from alfalfa, in Danzenbaker 4 x 5 sections. Write for prices.
WM. MORRIS, Route 1, Las Animas, Col.

FOR SALE.—Extracted choice ripe clover honey in cases of two 60-lb cans each, at 8 cts. per lb.; 335-lb. bbls. at 7½ cts per lb.
G. W. WILSON, R. F. D. No. 1, Viola, Wis.

FOR SALE.—Extracted honey, amber, 5½ up; light 7 up. Several size packages. Samples, 10 cts.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Extracted honey. Mail sample and lowest price; also fancy and No. 1 comb honey; must be in no-drip shipping-cases. We pay cash.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us.
EVANS & TURNER,
Columbus, Ohio.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.
THOS. C. STANLEY & SON,
Fairfield, Ill., or Manzanola, Colo.

WANTED.—Beeswax; highest market price paid. Write for price list.
BLOCH, BECKER & CO., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer
SEAVEY & FLARSHEIM,
1318—1324 Union Avenue, Kansas City, Mo.

PAGE & LYON,
New London, Wisconsin.

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We Have Not Moved.

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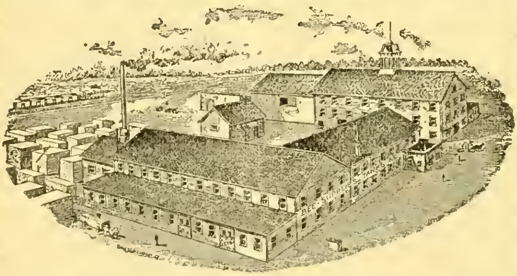
J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order Office at Wetumpka, Alabama.



Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

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Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

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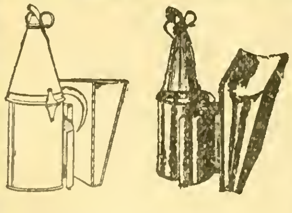
Shugart & Ouren, Council Bluffs, Iowa,
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find $1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used. Truly yours,
Henry Schmidt, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

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U.S.A.

Eastern Edition.

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Until you see our 43d annual catalog. We've a carload of Root's Goods, and supply many goods not advertised in our catalog.

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We can supply these goods at their prices, and thereby save you valuable time and heavy freight charges. Bees, queens, and nucleus colonies from the very best strains in America. A 32-page illustrated catalog free.

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is the most centrally located city in the Dominion. It has unequaled shipping facilities for prompt transportation of goods to remote points. We have already in stock large consignments of the celebrated line of

Root's Bee-Keepers' Supplies

and other shipments will be coming forward from time to time. Our catalog is ready for mailing. Let us figure with you.

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Money in Bees for You.
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Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

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Mechanic Falls, : Maine.
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We offer

4 Per Cent. Discount

for cash orders during December. We are Jobbing Agents for The A. I. Root Co. in MICHIGAN; let us quote you prices on sections and hives.

M. H. Hunt & Son,
BELL BRANCH, MICH.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis

A No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark. that is, there will be "Fancy White," "No. 1 Dark," etc.

Milwaukee.—Since our last report the receipts of honey have been liberal—rather accumulative—especially on comb, the demand has not been equal, and values are lower to sell. The increased supply is one factor to weaken values, and another is that some who have honey to sell make a lower market by offering to sell below quotations, which otherwise might be more easily maintained; and some deliver at a price made by buyers, which has a temporary depressing effect on market values. We look for a consuming demand for the supply, and will quote as follows: Comb, fancy section, 13@15; No 1 sections, 12½@13; extracted, in barrels, old or damaged, nominal, 10@11; cans, kegs, pails, choice, well ripened, white, 7@8; cans, pails, choice, well ripened, dark or amber, 6@7. Beeswax, 28@30.
A. V. Bishop & Co.,
Dec. 4. 119 Buffalo St, Milwaukee, Wis.

Philadelphia.—Honey seems to be arriving qutie freely, and, as is usually the case at this time of the year, parties who have been holding back the honey are rushing it to market and breaking prices by offering it at much less than its actual value. If bee-keepers would only give the large cities nearest which they reside an idea of what honey they have on hand, it would be an amicable arrangement both to the seller and producer. We quote fancy white, 16c.; No. 1, 15c.; amber, 13@14; extracted honey, white, 7@8; light amber, 6@7. Beeswax still in good demand at 31@32, according to quality. We are producers of honey and do not handle on commission
Wm. A. Selser,
Nov. 27. 10 Vine St., Philadelphia, Pa.

Toledo.—The market for comb and extracted honey has been rather quiet for the past two weeks, as have all other lines of staple goods, but prices remain practically unchanged. Fancy white clover brings, in a retail way, 16c.; No 1, choice brings, in a retail way, 15c.; buckwheat brings, in a retail way, 14c.; extracted white-clover in barrels, 7c.; in cans, 8c. Beeswax, 28@30.
Griggs Bros.
Dec. 8. Toledo, O.

Cincinnati.—The market on comb honey has weakened, as the supply has been larger than the demand. Quote fancy water-white at 14; off grades, lower. Extracted I quote as following: Amber in barrels, 5¼@5¾; in 60-lb. cans bring ½c more; alfalfa water-white, 6@6½; fancy white clover, 7@8 Beeswax in good demand; will pay 30c for nice wax delivered Cincinnati.
C. H. W. Weber.
Dec. 7. 2146 Central Ave., Cincinnati, Ohio.

Albany.—In our last quotation there was a misprint; the word "heavy" should have been honey. We meant to say then as now honey market much easier, the cold weather checking demand and checking the honey. We quote white-clover, fancy, 15; A No. 1, 14; No. 1. 13½; mixed, 12½@13. Extracted, no change, 5½ to 7 whole range.
MacDougal & Co.,
Dec. 8. 375 Broadway, Albany, N. Y.

Detroit.—Fancy comb honey, 16; No. 1, 14@15; darker grades, 12@13; extracted white-clover, 7@7½. Beeswax, 28@30.
M. H. Hunt & Son,
Dec. 8. Bell Branch, Mich.

Boston.—Owing to very large receipts of California honey we quote our market at the present time as follows: Fancy white, in 1-lb. sections, 16@17; A No. 1, 16; No. 1, 15. No call for No. 2. Extracted, 6@8 according to quality.
Blake, Scott & Lee,
Dec. 7. Boston, Mass.

Columbus.—We are pleased to report a very satisfactory market on honey, but with a lighter demand owing to the near approach of Christmas. Prices range from 13@15 on white; 11@13 on amber; and 10 on buckwheat. We are in shape to handle both large and small shipments.
Evans & Turner,
Dec. 7. Columbus, Ohio.

Chicago.—At this season of the year there is not much trade in honey, retailers having laid in their stock for the holidays. Fancy comb honey for the Xmas trade has brought 13½; No 1 grades, 12½@13; amber, 9@10; extracted, white, brings 6@7; amber, 5@6. All extracted honey is sold on its flavor, quality, kind, and style of package. Beeswax, 28@30
R. A. Burnett & Co.,
Dec. 7. 199 South Water St., Chicago, Ill.

San Francisco.—Honey, new comb, white, 12@14; amber, 10@12; extracted, water-white, 5½@6; light amber, 5@5½; dark amber, 4½@5. Beeswax, 30. Wholesale wax prices are higher than for months past.
Ernest B. Schaeffle,
Nov. 28. Murphys, Cal.

Toronto.—Prices on honey remain about the same here. Best extracted from 7@8 per pound, with just a little better demand; comb honey advanced a little, price at present from $1 60 @$1 75 per dozen for A No. 1 and fancy; $1.50 per dozen for No. 1 and good No. 2.
Dec. 8. E. Grainger & Co., Toronto, Can.

Schenectady.—As is usually the case at this season of the year, trade is generally in the direction of holiday goods, and honey market rules quiet and prices not as firm with ample stock on hand. We quote fancy white, 15; No. 1, 14; amber, 12@13 buckwheat, 12@13; extracted, light, 6½@7½; dark, 6@7.
Chas. McCulloch,
Dec. 8. Schenectady, N. Y.

Kansas City.—Receipts of comb honey larger, demand fair, prices easier. We quote fancy, 24 section case, $2.75@$2.85. No. 1, 24-section case, $2.75; No. 2, 24-section case, $2.65; extracted, white, 7@7½; amber, 6@6½. Beeswax, 25@30.
C. C. Clemons & Co.,
Dec. 7. Kansas City, Mo.

Buffalo.—There is not a very active demand for honey, and still white comb and strained clover sell pretty well. Fancy white comb, 14@15; A No 1 white comb, 13½@14; No 1 white comb, 12½@13; No. 2 white comb, 11½@12; No 3 white comb, 11@11½; No. 1 buckwheat comb, 11@12; No. 2 buckwheat comb, 10@11; white extracted, 6@7; dark, 5½@6. Beeswax, 28@30. Small crates of honey sell the best.
W. C. Townsend,
Nov. 28. 178 & 180 Perry St., Buffalo, N. Y.

For Sale.—Three tons comb honey, in 4x5 sections, put up in glass-front cases.
J. I. Chenoweth, Albia, Iowa.

For Sale.—Thirty barrels choice extracted white-clover honey Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps.
Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

For Sale.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale.—Clover or buckwheat extracted honey, in 165-lb. kegs. Write for prices. Sample. 8c.
C. B. Howard, Romulus, N. Y.

For Sale.—1000 lbs. No. 1 white comb, at 14c, and 2000 lbs. No. 1 extracted, at 7½c.
W. D. Soper,
Route 3, Jackson, Mich.

For Sale.—Comb and extracted honey, buckwheat and amber. Write for prices.
N. L. Stevens,
Route 6, Moravia, N. Y.

For Sale.—5000 lbs. of fine comb and extracted honey, mostly all comb.
L. Werner,
Box 387. Edwardsville, Ill.

HONEY JARS

1-lb. sq. jars with corks......$5.00 gross Eagle or No. 25 jars...........$5.75 gross
Nickel Cap jar, fancy, $5.50 gross.

Catalog giving prices on every thing a bee-keeper needs, with season discounts, mailed free.

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——Will pay highest market prices.——

I. J. STRINGHAM,
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The Best Bee-goods in the World

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for w catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

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W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

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AND

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This is a magnificent offer, and should be taken advantage of by all of our readers who are not now getting The American Bee Journal regularly. These papers, although on the same subject, are conducted so differently, and contain such a variety of reading matter, that every bee-keeper should have them both. And they can be had for a whole year for $1.60. Address all orders to

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RETAIL AND WHOLESALE.

This foundation is made by a process that produces the superior of any. It is the cleanest and purest. It has the brightest color and sweetest odor. It is the most transparent, because it has the thinnest base. It is tough, clear as crystal, and gives more sheets to the pound than any other make. **Working Wax into Foundation for Cash a Specialty. Beeswax Always Wanted at Highest Price.** Catalog giving full line of supplies, with prices and samples, free on application.

E. Grainger & Co., Toronto, Ont., Sole Agents for Canada.

Gus. Dittmer, Augusta, Wis.

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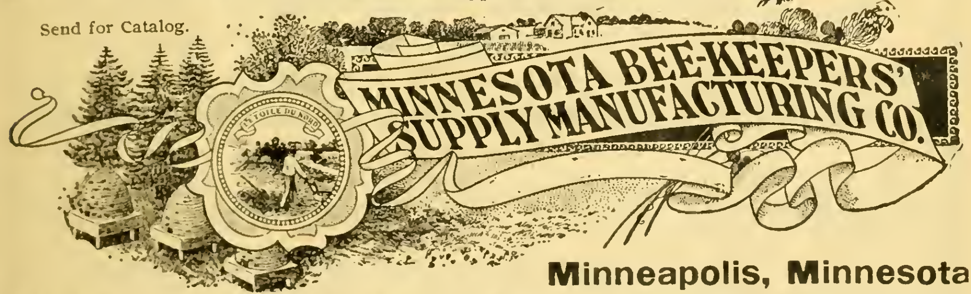
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L'ETOILE DU NORD

Minneapolis, Minnesota

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WE HAVE GROWN

Too Big for Our Present Quarters.

This rapid expansion of our business has driven us out, and on Jan. 1 we shall be located at No. 51 Walnut St. This forced change will remove us only half a block from our old home, but there we will have four floors with increased facilities, and a tremendous new stock of bee-supplies.

We Had to Do This---We Lead.

In the new place nothing will be lacking. You will find a complete line of every thing in the bee line. The Muth Special, the regular styles of Dovetails, Dadant's Foundation, etc. Special discounts for early orders. Come and see us. Queen Bees and Nuclei in season. **Send for Catalog.**

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Front & Walnut, CINCINNATI, O.

Four Per Cent Discount
During December.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS

By DR. C. C. MILLER.

ALL RIGHT, Mr. Editor; zinc is the thing for numbering-tags.

SO HUBER has been going breakfastless for years. He's a husky-looking chap to be starved after that fashion. [I have also a niece who is a no-breakfast fiend, and she is the picture of health.—ED.]

THE RETIREMENT of Editor Bertrand, of *Revue Internationale*, will be to me as to many others a real personal loss. [See what Frank Benton says in Pickings in this issue in regard to Editor Bertrand.—ED.]

"A WISE MAN seldom changes his mind: a fool, never." I don't want to be in the fool class, so I'm going to change my mind. I'm not going to vote for E. R. Root for director, but for that jolly Canuck, William McEvoy. He's a good one.

THANKS, Mr. Editor, for the full information about that automatic smoker, page 1000. It's worth a good bit, sometimes, to know that we don't want a thing. An old-fashioned automatic smoker is a pan containing a smudge-fire on the windward side of the hive. But give me a good bellows smoker.

H. J. SCHROCK, I think that "old beekeeper" did not observe closely enough if he thought the circle of bees kept the queen from laying, page 1012. This is probably what you will find: Whenever a queen remains still long enough, a circle is formed, facing the queen. The queen does not remain still because the circle is about her; but the circle remains because the queen is still. The instant the queen makes the slightest signal to pass on, the circle opens up for her free passage.

S. J. RICHARD reports in *Revue Internationale* that for three consecutive years a colony with its entrance at the top of the hive did not swarm, while a colony beside it with entrance below swarmed. He then changed the lower entrance to the top, and since then, six years, neither colony has swarmed. [It does not seem possible that the mere location of the entrance could have any effect upon this question of swarming. This experiment is interesting; but it would be more interesting if it worked in the same way in the case of 100 colonies.—ED.]

I'VE READ, several times over, that item of inspector Hinckley, page 1014. If he can cure foul brood by merely spraying formaldehyde on the hive-floor three times at intervals of two weeks, it's a big, a very big, thing. It's hard to believe that the microbes can be killed without killing the bees; yet it may be possible. I suppose it is not necessary to kill the spores, on the supposition that four weeks after the first treatment they have all germinated. [If the plan described by inspector Hinckley shall work equally well with others it certainly will be "a very big thing." I hope we can get reports from others next spring or summer.—ED.]

I SPENT some time polishing up that wheelbarrow Straw, p. 996, and patted myself on the back for having got off a good joke. Along comes the editor and spoils it all by saying I've made another slip. And now I'm distressed to know whether the joke is on me or him. Perhaps I deserve punishment for not labeling my jokes. [Your joke would have been transparent, doctor, if you had not put in that clause, "wheeling one another." I told Stenog that I was sure it was one of your unlabeled jokes; but we finally agreed that the disclaimer threw that out of possibility. Next time, polish your jokes a little more and they will pass muster.—ED.]

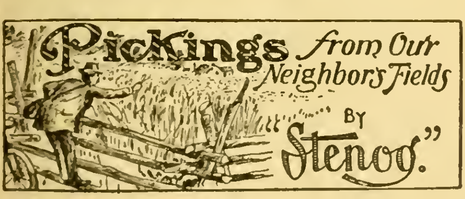
SLOW LIQUEFYING will keep honey in a liquid condition longer than if it be liquefied in a few hours. If you don't want to spoil the flavor, heat it in water no hotter than you can hold your hand in. Yes, I know I'm guilty of plagiarism in writing that, because it was said on p. 1002. But it's important enough to be said over again. When I read, "not much hotter than you can bear your hand in," I said, "That's pretty cool, Bro. Aikin." I put a thermometer into a dish of water, put my hand in the water, and poured in hot water till it was too hot for comfort. I found I could hold my hand still in the water at 122°. The washwoman happened to be here, and she could stand 145° for any length of time. I could stand 145° for about two seconds. So instead of saying "not much hotter" I now prefer to say "no hotter." Another point: If the heating is done before any granulating occurs, I *think* the results will be better than if the honey be first allowed to granulate. [I think there is something in this.—Ed.]

Supersedure cells are sometimes started over larvæ in worker-cells, page 1012. That's new. Have you seen that, Mr. Editor, *with a laying queen still in the hive?* [I based my statement on the observations of our Mr. Phillips, who has been running some 550 colonies for queen-rearing for us this season, and he has also had a large experience with his own bees in Jamaica. He distinctly remembers that supersedure cells have been started over larvæ in worker cells, while the laying queen is in the hive, although he admits that such a combination is not common. He says: Dr. M. will notice by referring again to the footnote that a *rule* is set forth, and it is that bees working under the supersedure impulse proceed with the building of cells as in swarming. Like most of the other rules that apply to bee-keeping, however, it admits of variation. Defective queens which the bees are trying to supersede may be of *all kinds*—some fairly prolific, others barren; some defective through old age, others as a result of an accident. If it were certain that queens being superseded would continue laying until the day of their death, and the bees were left undisturbed to proceed by nature's plan, then the raising of queens from "*pre*-constructed" cells might be said to be invariable. But this is not the case: Queens sometimes stop laying altogether before they die, and if, as intimated in the footnote in question, the supersedure cells are removed as fast as they are built, and the fecundity of the queen ceases, the only resource left to the bees is to make "*post*-constructed" cells the same as a queenless colony. The only question is, would such a queen be called a "laying" queen? That the editorial comment is correct I am certain.—Ed.]

Years ago we bought lumber and made our own hives. Gradually the thing has changed until nearly every one has decided that he can buy hives, etc., cheaper than he can make them. Now that there has been an advance in prices, bee-keepers are advised to go back to the old way, p. 1003. Let's see: Suppose that, five years ago, it cost me 10 per cent more (as I think it did) to make my own supplies than to buy them ready-made. Suppose that there is now an advance of 40 per cent in the cost of labor and material, and that there is an advance of 40 per cent in the price of the ready-made stuff: Is there any change whatever in the relative situation? And will it not cost me now 10 per cent more to make than to buy, just as it did five years ago? I don't see the logic of saying that, because every thing has advanced, now is the time for us to do our own manufacturing. If the per cent advance in price of supplies is sufficiently greater than the per cent advance in price of labor and material (say 45 per cent or more), then it may be worth while for me to think of making my own supplies; otherwise, not. [I have referred the answer to this Straw to Mr. Calvert, who fixes the prices on goods that we sell. He says: Your reasoning is all right. The trouble with the one who ventured the advice that bee-keepers better have their hives made at the local planing-mill, is, I fear, that he was counting on buying his lumber at the same old price. If so, he has reckoned without his host. I have just made a comparison of bills for lumber, both for hives and sections, paid five years ago, with those paid during the past six months, and I find that 40 per cent must be deducted from present prices of lumber, and in some cases 45 to 50 per cent, to bring them down to the level of prices paid then. The difference in labor is not quite as much. I find, also, that, by deducting 40 per cent from present prices on hives, sections, frames, and shipping-cases, the remainder corresponds very closely to the list prices of five years ago. The advance in prices of supplies has simply kept pace with the advance in cost of material. We have bought within the past year over five and a half million feet of lumber, and ought to be in position to know what such material costs as compared with former years.—J. T. C.]

On page 528, Mr. Editor, you said, "Now, is it hard to suppose that a three-story hive, run for extracting, might average 70,000 bees?" I replied, p. 579, "Nothing very hard about it for me; but how about a certain editor who not so very long ago was trying to convince me that such a thing was an impossibility?" You then said, "I can not recall to what you refer. I have advocated strong colonies . . . . and last year I had several three stories high, and one or two four stories. If some of them did not have 100,000 bees it would be strange." I thought I would refresh your memory by giving you the page to which I referred, and began leafing back, saying all the while, "Oh! but won't I roast you, my fine fellow, when I fling in your teeth just what you said?" I leafed back to March 1, through four months, but didn't find it. Leafed it over again. Didn't find it. Instead of roasting you, I began to feel chilly myself. It was July, and I was very busy; but I patiently hunted over the ground again with no better success. The thing was so fresh in my mind that I concluded it wasn't worth while to go any further back, and I began to wonder whether I had not dreamed it, mentally resolving, however, to renew the search if I should ever have the leisure. This being Thanksgiving week, I began to breathe more leisurely, and to-day I thought I'd decide whether I'd been dreaming or not. I turned over the pages of GLEANINGS, back, back, back, and—would you believe it?—I never struck it till I got into 1901, and found the thing started April 15 of that year. On p. 431, 1901, you challenged me to find a colony of more than 45,000 bees, and tried to wheedle me into being a dude by offering me the best plug hat I could find in Marengo if I succeeded. Now, inasmuch as I can show from p. 579 that it would be strange if some very strong colonies would not reach 100,000, I ought not to have much trouble to find a colony of more than 45,000 to secure that hat, ought I ?

P. S.—How much will you allow me for that stovepipe if I discount 5 per cent for cash? [You have fairly earned your plug hat. When you go to Chicago next, go to the best hatstore in the city and get fitted for a plug hat and send your bill in to me. But if I foot the bill you must wear the hat at the conventions and everywhere else where common folks go. As you are short and stout, a stovepipe would top you out in good shape. But referring to the question at issue, I based my first statement in 1901 on the fact that 9 lbs. was the largest swarm of bees that I had ever weighed, and it filled two and possibly three stories. We used to buy bees by the pound of the farmers during the swarming season, and the 9 lb. weight was the largest we ever paid for. Of course, a three-story *colony* in Jamaica might have a good many more than this. I will admit, however, there is a conflict of statements. I still think that a 9-lb. *swarm* is the biggest that we shall ever have in northern United States; and yet I believe that a four-story *colony* might contain 100,000 bees. Say — I am going to camp on your trail. If I can catch you good and square, will you buy me an automobile?—ED.]


Pickings from Our Neighbors' Fields
BY
"Stenog."

A foreign journal says if honey is heated above 174 degrees, the point at which alcohol boils, the volatile oil which gives the honey its flavor will be expelled, giving the residue a flat and insipid taste.

Another journal says it is better to sell honey of a slightly inferior quality to one to whom we can explain the matter fully than to market it and thus injure our own reputation, and cause honey itself to fall into disfavor.

A Dutch journal, I believe it is, says the best system of wintering is that which gives us the greatest number of healthy bees in time for the first flow of nectar; and experience alone can decide the matter for each.

REVUE INTERNATIONALE.

In the previous issue I announced the discontinuance of this journal on account of Mr. Bertrand's health. Just as we were going to press, the following came from Mr. Frank Benton, in addition to what I had already translated. I most cordially indorse what he says in the following, for he is, probably, the best-qualified man in the world to speak on this matter:

> This journal has presented, during these 25 years, a vast amount of excellent information on apiarian topics, and has had great influence in introducing American methods into the various countries of Europe, particularly into Switzerland, France, and Russia, and it will be greatly missed in the future. For my own part I hope that decision of Mr. Bertrand to retire may bring forward some successor who will continue the publication. I am sure that those to whom Mr. Bertrand's journal has been a welcome visitor from month to month will wish him many peaceful years yet after his earnest efforts in the advancement of apiculture. FRANK BENTON.
>
> Washington, D. C.

EL COLMENERO ESPAÑOL.

In speaking of bee-keeping in various countries, the editor says this of Chili, after speaking of the United States as mentioned in our previous issue:

> Although Chili can not be compared with the United States, still it has an extraordinary number of colonies of bees in antique skeps, and some in modern movable hives. This is the only nation of America which offers competition to the honeys of Europe.

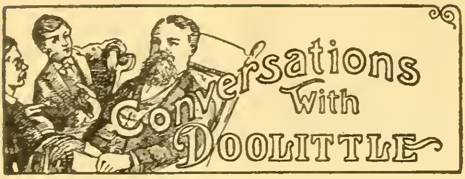
In the A B C book will be found a fine view of a Chilian apiary.

In speaking of Cuba the editor says:

> Cuba also has many colonies kept in the old-style way, almost in a wild condition, as they are found in the forests, and belong to nobody. Those who exploit this public wealth are the negroes, who send the honey and wax to Europe, and thus put up competition to European products. There are many important apiaries in Cuba using the movable frame.

In Santo Domingo, Argentina, Uruguay, and Mexico the modern hive is known, but too few in number to attract attention. "In the rest of America," the editor says, "the movable system is almost entirely unknown." Coming to Germany we find, of course, a different state of affairs. We read:

> This country contains 2,000,000 hives of the movable-frame type, so that Germany's apicultural condition is the most important in Europe. In spite of its cold and forbidding climate it produces annually 18,000 tons of honey, the quality of which is very fine and white. As it is produced from cultivated plants it has no pronounced flavor. Germany is the country that has the largest number of apicultural societies; and, likewise, has the largest number of bee-journals, as every society has its own mouthpiece. These societies have the support of corporations and of the government, and they have continual conventions for the development and spread of apicultural knowledge.



TO COMMENCE IN BEE-KEEPING.

"Is this Mr. Doolittle, the bee-keeper?"

"My name is Doolittle, and I keep a few colonies of bees. What is your name?"

"My name is Beebe, and I wish to commence keeping bees in the spring. A neighbor told me to come over and see you, and you would tell me something that might help me in starting. I had thought of buying fifty colonies. Do you think that number would be as many as I should buy?"

"I should say that said number would be from five to ten times as many as any beginner should buy, unless he has considerable knowledge of the business before thus starting into it."

"Why do you say thus?"

"Because the beginner should guard against going recklessly into bee-keeping by putting his last dollar into a business of which he knows nothing. It is this getting crazy over a business which looks to be a good thing, but with which we are not acquainted, and investing all we have in it, expecting to make a fortune, which ruins so many. To be successful in any thing, a man must 'grow up' in it by years of toil and study till he becomes master of the business, when, in nineteen cases out of twenty, he will succeed."

"Is that the way you commenced?"

"If you will pardon a little personal reminiscence I will tell you briefly of my commencement. In the winter of 1868 I became interested in bees by reading the first edition of 'King's Bee-keeper's Text-book,' which chanced to fall into my hands. Next I subscribed for one of the bee papers, read Quinby's and Langstroth's books, and in March bought two colonies of bees and the hives which I thought I should need for two years, paying the sum of $30 00 for the whole lot. The year 1869 being the very poorest one I have ever known, I had but one swarm from the two colonies I bought, and had to feed $5.00 worth of sugar to provision the bees through the next winter. In 1870 I received enough from the bees to buy all the fixtures I wished for 1871, and a little more. So I kept on making the bees pay their way, as I had resolved, during the winter of 1869, that, after paying the $35, I would lay out no more money on them than they brought in, believing that, if I could not make the three colonies pay, which I then had, I could not three hundred."

"Did you stick to that?"

"Certainly; and in the fall of 1872 I found that I had an average of 80 pounds of comb honey from each colony I had in the spring, which was sold so as to give me $559 free of all expense incurred by the bees, except what time I found it necessary to devote to them."

"Whew! can bees be made to pay as well as that?"

"Probably not at the present time, as honey brought at that time from 25 to 30 cents a pound, while now that same honey would not bring more than 14 to 16 cents. You will note that I said 'probably not,' and I thus said because of the depreciation of honey in price. But while the prices of to-day are against us, yet we have made such an advance in the science of bee-keeping, and a much better variety of bees, that it is possible to obtain much more honey from the same number of colonies at this time than it was in the early seventies."

"Excuse my breaking in on you. Go on with your story."

"The next year I purchased an extractor and set apart a single colony to be worked for extracted honey. When the basswood bloom opened I hired a man to take my place in the hayfield, paying him $1.75 per day. The man worked sixteen days, and I extracted during those sixteen days, honey enough from that colony which sold for some 70 to 80 cents more than what I had to pay the man in wages."

"Wh-e-w! again."

"I told you this only to show that one colony of bees properly worked was equivalent to myself or yourself in the hayfield; yet many a beginner who has purchased fifty colonies of bees, as you proposed, has left them to go into the hay and harvest fields, or at their other business, only to go out of the bee business a year or two later, telling us and those about them that bee-keeping does not pay. By starting at the foot of the ladder, as it were, working your way up, you will learn these things as you would not were you to start at the top, when in all probability you would work your way down, if you did not fall down. I believe it takes more skill to become a bee-keeper that is worthy of the name than it does to do the ordinary work on a farm."

"Then must the bee-keeper be tied to his bees every day, and all the day long?"

"No. You must learn to tell just when the bees need your attention and when they do not, by a thorough understanding of their workings, coupled with the same thorough understanding of your location as it applies to the bees. Then, when the bees do not require any special attention they can be left, and the apiarist do other work, or play if he likes; but the bees must not be neglected for a single day, when that day will put them in condition to bring dollars in the future, if you and I are to be successful bee-keepers."

"Excuse my breaking in on you this second time. Tell me more about how you got along with the bees."

"My diary shows that, in 1874, my honey was sold so as to bring me $970, free of all expense from the bees, not counting my time, and now I began to think of giving up the farm, but finally concluded to hold on to it one year more, to make sure that I could make bee-keeping pay as a specialty. After deducting the expenses of the bees from the sales, I found that I had the next year (1875) the amount of $1431, and hesitated no longer, but gave up farming and embarked in the bee business, with nothing else as a source of revenue. Since then the profits have varied according to the seasons and the prices obtained; but in figuring up a few days ago I found that the average since 1875, or for the past 28 years, has been about $1045 each year, free of all expense incurred by the bees; or, in other words, that has been my salary which the bees have paid me, with an average of about 75 colonies in the spring of each year."

"Do you spend all of your time on so small a number of colonies?"

"No. In the early eighties I kept from 200 to 250 colonies for a year or two; but the long-continued sickness (five years) of my father, and his death, brought new cares upon me; and, having other irons in the fire, I was obliged to reduce the number of colonies kept."

"I see I must soon be going, as it is getting late. Tell me in a few words just what your advice to one contemplating going into the bee business would be."

"My advice to you, and all others who think of trying bee-keeping as a business, would be, procure from three to five colonies of bees: post yourself by reading about and experimenting with them, as you can find time to do from the business you are already in, and thus find out for yourself which you are adapted to, and which is the better for a livelihood—the business you are already in, or keeping bees. If successful, after a series of years you can give up your other business if you wish to. On the contrary, if bees are a failure in your hands, then you will be but little out for having tested your ability in that direction."

Editorial
By E. R. Root.

THE Arkansas Valley Honey-producers' Association has now organized with a capital of $5000, with headquarters at Rocky Ford, Colo.

"THE WONDERFUL WAYS OF HONEY-BEES."

THIS is the title of an interesting article in the Cleveland *Leader* for Nov. 29. It seems that a reporter had visited the veteran, J. B. Hains, of Bedford, Ohio, and from him gleaned some interesting and valuable matter on the subject of bees in general. So far as I have read, the facts stated are mainly correct. The *Leader* is probably only one of the syndicate papers publishing it; and if so, this article will have a wide publicity.

OUR INDEXES.

BY glancing over the indexes of the various departments covering the entire year one will get a pretty fair idea of the immense amount of matter we give to our subscribers for $1.00. These indexes are very carefully prepared, and we believe they will prove to be of great value to the careful student of bee culture.

THE NATIONAL ASSOCIATION FORGING AHEAD.

THE National is fast reaching the 2000 mark in membership. Mr. France is to be congratulated on the energy which he has put into his work. I do not believe the bee-keepers can do better than re-elect him. So far as I know, there is no other candidate in the field. So long as we have so capable a man for the office we don't need a rival for the position.

BEE-PARALYSIS EASILY CURABLE.

IN preparing the index for 1903 I was greatly surprised to see the number of cases during the past year of the successful use of sulphur for curing bee-paralysis. These, coming from time to time, did not attract my special attention ; but the fact that so many of them confirm O. O. Poppleton's observations all through is somewhat significant. Indeed, I think we may safely conclude that the once incurable disease is now easily curable. The *American Bee-keeper* has our thanks for directing our attention forcibly to this fact.

MOVING BEES A SHORT DISTANCE IN WINTER.

WE are asked a great many times during the year how to move bees a short distance, say 15 or 20 rods. Sometimes it happens the bees are too near the highway, and it is desired to move them from the front yard to the back, or to a little grove near by. The question is, how to get them over to the other spot. While, of course, they can be moved any distance in summer greater than 1½ or 2 miles, they can not be readily moved a short distance without some loss and inconvenience. During the winter, however, you can move them a few rods without any difficulty. Put the hives in the cellar, and in the spring put them where you like. A confinement of six weeks in chaff hives outdoors during the cold weather ought to put the bees into condition where they will stay in the new location if they were moved before they had a fly.

FRAMES SUPPORTED ON NAILS.

MR. HUTCHINSON describes what he considers an excellent method of frame support used by Mr. E. B. Terrill. The projection of an ordinary hanging frame is cut off, and in lieu of it a six-penny finishing nail is driven into the frame about half an inch below its top. Mr. Terrill has tried it one season, and is very favorably impressed with it. I tried this arrangement myself, but found that the nails would break out or make the hole egg-shaped sometimes when the frames were heavily loaded with honey. Then I did have just the difficulty Mr. Hutchinson fears—that the frames would not hang true. But perhaps I didn't try the arrangement long enough; but I recall that several have spoken of using this device; but, if I mistake not, they sooner or later abandoned it. If not, will they please let us hear from them?

COVERS FOR HIVES; WHY THE OLD FLAT CLEATED COVER IS NOT NOW FURNISHED.

In the November *Review* Mr. Hutchinson says, "A plain board for bottom and cover, with cleats at the ends to prevent warping, is all right for a large majority of localities. It is exactly what I should choose for this locality." I agree with him exactly. There is nothing better than the old flat cover; but his inference is that such a cover is cheaper than some other of more complicated construction. The fact is, clear wide boards in sufficient quantities to care for the trade for such covers can not be bought at any price. The big pine trees are nearly all gone. Manufacturers have simply been *compelled* to adopt a roof covered with paper or metal or some form of three-piece design that would permit of the use of one or more narrow boards spanned by a ridge-piece to close up the cracks. Such boards are readily obtainable at a moderate price because the small trees are not all cut out yet.

CANDIED HONEY; SOME THINGS WE NEED TO KNOW.

On page 326 of our issue for April 15 appeared an editorial on the subject of the candying of honey—what we do and do not know about it. At that time I asked for more information, and especially about stirring—how much of it would cause honey to granulate, etc., but received almost no response. Now that many bee-men are trying to put up their extracted honey in paper bags, it is a matter of supreme importance to know how to make their liquid product assume a solid condition as rapidly as possible.

At our Chicago office our honey-men are conducting some experiments along this line; and we suggest that our readers do some experimenting also. I will pay $10.00 for the best article on this subject.

In Colorado it is no trick at all to make alfalfa honey granulate; and it may be said that the problem is easy enough in the East in the winter. Yes, but it will not candy *fast enough* or *solid* enough in many cases, I fear, to make the putting-up of honey in paper bags a commercial success. Many facts have already shown that stirring greatly hastens the process of solidifying. Let us have some facts from actual experience. A knowledge of how to keep honey indefinitely in a liquid condition, in a freezing atmosphere, sealed and unsealed, and also how to make it turn solid, is something that bee-keepers need at the present time.

HOW TO KEEP HONEY INDEFINITELY.

Mr. Charles Weber, son of C. H. W. Weber, of Cincinnati, told me that it was no trick at all to keep all honey except alfalfa liquid indefinitely under all conditions. The temperature must be brought up to 145 Fahr., and kept there continuously, without variation, for 36 hours. That is the whole secret. "But," said I, "will this not darken the honey?"

"No, sir, if you do it right. *Long* heating, *continuously* applied at a *moderate* temperature, is much more effective than a high temperature for a short time. The latter spoils the flavor of the honey, as well as darkens it, while the former leaves it with its original delicacy of flavor, and with no darkening of color."

He emphatically stated, however, that his formula would not apply in the case of alfalfa. He could liquefy it, of course, but it would not keep in a liquid condition nearly so long.

This is a very interesting and profitable subject for discussion, and I should be glad to hear from our subscribers. Some of us, as I have pointed out elsewhere, desire to make their honey candy, and candy hard, in a short space of time; but the rest of us—and I presume a great majority—desire to know most of all how to keep it in a liquid condition so it will not "turn into sugar," in the language of their customers, thus bringing up the hue and cry of adulteration.

GIVING THE PAGE NUMBER.

If our correspondents would invariably, in referring to something that has been previously written, mention the page or the issue of the matter under consideration, it would not only facilitate reference, but enable one to find all the places where that subject is discussed in any given volume by finding only one index page. It is not always possible to cross-index in such a way as to give all the pages on any one subject. Dr. Miller, in his Straws, is a model in this respect, and I wish that all our correspondents would follow after him.

To illustrate what I mean, let us take an example. I wish to know what is said about queens being stung when balled, as I wish to write an article on that subject. I look under the head of "Stings," and do not find any reference. I look under "Balling," and do not find any thing there. Finally I turn to "Queens," and, looking down the column, I see "Queens Stung in Ball," and only one reference. I turn to the page indicated, and there find what Dr.

Miller has to say, and that he refers back to something previous, giving the page where it is found. Some one else in a like manner indicates another page, and so on. The one reference in the index enables me to find every place in the volume where that particular subject is discussed.

Our index is very voluminous; and even now it is not possible to give a page number to every little subject, tracing it out in all its phases clear through the volume. If, then, our correspondents will be careful to give the page in every instance it will greatly facilitate back reading, and enable one to get a birdseye view of the subject during the year past.

THE COMB-HONEY CANARDS; THE NEED OF A NATIONAL PURE-FOOD LAW; "SENATORIAL COURTESY."

RECENTLY a friend of mine happened to mention to some other friends in Cleveland that he was going to Medina.

"Medina? Medina? Why, that is the place," said these acquaintances, "where they have a factory for manufacturing comb honey. Going down there, eh? Well, tell us all about it when you come back."

So the comb-honey lie bobs up here and there in one form and another, and one can readily see why the Root Co. feels like chasing it down to its last analysis. It is generally known that there is a big beehive establishment in Medina; and the unsophisticated public in general have heard the numerous canards that have been set afloat, and conclude, as a matter of course, that comb honey is manufactured here. We Medinaites are not very well pleased with this kind of reputation; and if there were laws by which we could get hold of some of these people who are so persistently circulating these lies we would make it warm for some one.

If this were all we could stand it, but I believe it is true that many people in the cities believe that comb honey is manufactured—that very little of it is genuine. You can scarcely run across a person who has not read these stories; and, on the other hand, you can not find one who has read the denials of bee-keepers that we have caused to be published. The lie goes on being credited, while truth is smothered. Verily the task seems hopeless.

Some day when we get a national pure-food law, perhaps consumers will believe that the beautiful honey they see in the market is not manufactured. One great remedy for this deplorable situation is for the bee-keepers of the country to make a united demand on their congressmen for a pure-food law along the lines of the Hepburn bill that has been up a number of times, was finally passed by the last House, but which was shelved and pushed aside in one way and another, all because of "Senatorial courtesy," and because our national Senate refuses to adopt some measure whereby the filibustering of a very small minority can be stopped. Some day the people will rise up in their wrath, and elect only Senators who will carry out the will of the people. They are sick and tired of the talk-to-death rule in the upper House. The action of the Senate, or, rather, of a despicable minority, regarding some very necessary, almost indispensable, laws is aggravating beyond measure.

AIKIN'S CANDIED HONEY IN PAPER PACKAGES.

JUST now I saw our folks have some very pretty little 2-lb. packages of the above in our department where we retail honey. They are getting 25 cents each for these 2-lb. packages—12½ cents per lb. for honey done up in paper! Said I, "Why, this is more than you get for honey put up in glass."

"Yes, that is so. We get only 11 cents per lb. for honey in glass jars, jar included."

This means there is a full pound of liquid honey sold for 11 cents, and the glass thrown in. We do not sell liquid honey the way they do *glassed* comb honey. When I remonstrated because they are getting more for honey in a cheap paper package than for that in a nice self-sealing glass jar, the reply was, "Well, the paper package is a new thing; and, besides, Aikin's honey is of extra quality."

Now, friends, the great point right here is, can other bee-keepers all over the world put up honey in paper packages and have it nice, dry, and clean? Why, there is not a cleaner-looking package in the groceries than these 2-lb. paper packages of candied honey. And right here the impression comes to my mind that perhaps Aikin drains off the sticky inferior liquid portion of his candied honey. I did the same thing thirty years ago, and I have done it this past year. The best way in the world to improve the quality of *any* liquid honey is to put it out in the cold and get it to candy if you can. Then put it in a strainer, or break it up in chunks so as to drain out (in a warm place) all the liquid portion that seems reluctant to candy. After it has drained for several days, and the candied honey has turned white and become tolerably hard, melt it up gradually, not getting it too hot, as suggested elsewhere in this number, and your honey will be greatly improved in quality and color; and if you pour it into these paper bags it will candy and remain hard, dry, and white. It will also be very much thicker than it was before you drained off the watery liquid honey. Now, any honey that can be made to candy by putting it out in the cold can be refined and purified by the above process.

Just one thing more about these paper packages: Ernest seems to think they do not stand hot weather. But I am sure they will stand it almost as well as they will cold weather, if you *keep the air out.* If the paper package is not absolutely air-tight it must be put up as the "Uneeda" folks put up their goods; and this can be done very cheaply. I saw some of Aikin's candied honey last season, right in the hottest July weather, that was not bad to handle at all, except on the outside where the damp air had got to it. It was during a very warm wet rainy time.

Now, then, friends, let us go to work and not let friend Aikin monopolize this business of getting better prices for honey done up in "brown paper" than that which is put up in glass jars. Will those putting up honey in paper bags please report in regard to it—especially Eastern bee-keepers? If you can not do any better, give us a brief report on a postal card. We are sure there are such among our readers, because we have sold a very large number of these paper packages for liquid honey.—A. I. R.

HONEY-PLANTS OF ARIZONA; DENSITY OF HONEY; TEMPERATURE TO WHICH HONEY CAN BE SUBJECTED WITHOUT INJURING ITS FLAVOR; VALUABLE EXPERIMENTS.

The Agricultural Experiment Station of the University of Arizona has just issued a bulletin, No. 48, on the subject of bee-products within the confines of that Territory. It is so good that we copy all except the tabular matter, which, to the average layman, is just so much Greek. As the tables are interpreted, and conclusions drawn therefrom by the author of the bulletin, Mr. R. H. Forbes, their omission will prove no great loss; but those who are interested in this matter can probably secure copies by applying to the station as above given.

It is stated by Indians and white pioneers that the honey-bee was unknown in Arizona until American occupation. The first swarms probably drifted in from Texas with adventurous settlers not long before the middle of the last century. In 1878, J. B. Allen brought a number of colonies to Tucson from California as a business venture; while in Salt River Valley, bee-keeping began early in the eighties.

The last census enumerates 18.991 colonies in the Territory, June 1, 1900, with a product during 1899 of 930.420 lbs of honey and 13,080 lbs. of wax having a total valuation of $67,489.

The sources of our honey are the desert flora and cultivated crops, chiefly alfalfa. A few of the principal producing plants and their seasons are as follows:

Mesquite (Prosopis velutina), April to July.
Screw bean (Prosopis pubescens), April to July.
Catclaw (Acacia greggii), May and June.
Acacia (Acacia constricta), June.
Paloverde (Parkinsonia torreyana), May.
Desert flora (Miscellaneous), depending on rainfall.
Alfalfa (Medicago sativa), April to September.

The wild honey-plants, because of grazing animals and of wood-cutters, have greatly decreased within recent years. The area in alfalfa, on the other hand, is constantly increasing, but without a corresponding increase in honey-producing power. This is due to two principal causes: Farmers are now cutting alfalfa for hay at a much earlier stage in its growth than formerly, not allowing the plant to come into full bloom; and the alfalfa butterfly (*Colias eurytheme*) has so increased in numbers since 1895 that the honey-flow, which used to continue well into September, is now cut short in July. It is difficult to state the net effect of these changes upon the producing power of the country as a whole; but in Salt River Valley under present conditions, judging from the shipments made during the last few years, our present irrigated areas with adjoining desert tracts are pretty fully stocked with bees. Other parts of the Territory are as yet less thoroughly occupied.

The quantity and character of the nectar produced by representative honey-plants is of interest in connection with the amount and quality of honey producible within a given territory. The results were obtained by selecting typical plants or areas, estimating the number of blossoms, and determining the sugars in samples of average flowers.

The figure for alfalfa is especially interesting, and corresponds roughly with such farmer's estimates of yield as "a can of honey (60 lbs.) to the ton of hay." Invert sugars vary from 1.60 to 21 times (averaging 8.6 times) the amount of cane sugar present in the flowers.

The quality of Arizona honey varies with its source as well as with its treatment and preparation for market.

The average moisture 16.85 per cent, is seen to be markedly less than that in Eastern honeys, averaging in two instances 19.39 and 18.50 per cent. This results from the exposure of Southwestern honeys before and during extraction to the exceedingly dry air of this region. With our excessive heat and dryness, evaporation quickly concentrates the honeys to a condition of ripeness which insures keeping, also considerably increasing the weight per gallon. Eastern honey usually weighs about 58 lbs in a five-gallon can, while the Arizona article weighs ordinarily from 60 to 62 lbs.

The ash is in most cases normal, with two interesting exceptions, each of them containing more than the average ash. This is probably because they are desert-flower honeys, the bloom for which, growing close to the dusty ground, became charged with dust, of which the bees did not entirely rid themselves.

Cane sugar, as compared with invert sugar, is present in smaller proportion than in the nectar of the blossoms mentioned. In the honeys analyzed it averages about one-fiftieth as much as the invert sugar; while in the blossoms examined, it ranges from about one-twentieth to five-eighths of the invert sugar. This peculiar change in character is stated to occur in the honey-stomach of the bee, in which the nectar is collected, and from which it is regurgitated in the form of honey. This transformation of cane sugar into invert sugar adds to the food value of honey, since the first result of digestion of cane sugar is to bring about just this change. Honey, therefore, in a strictly natural and wholesome sense, is a predigested food.

Invert sugar averages about 7 per cent higher than in Eastern honeys, a fact consistent with the presence in Arizona honeys of less water and non-saccharine substances. This is an important point in favor of the home product, and means a premium, in intrinsic food value, of about 7 per cent over the more watery honeys of humid climates.

Other substances than those commented upon, presumably acids, nitrogen compounds, and other non-sugars, average about two-fifths of the amount found in Eastern honeys. Two samples examined contained .28 and .21 per cent of albuminoid substances; while the Eastern honeys quoted above averaged .34 per cent. The presence of a small amount of acid in our samples would be consistent with their well-ripened and, consequently, non-fermentable condition.

The selling qualities of our honeys, such as consistence color, flavor, and aroma, vary considerably with both source and treatment. Wild flower honeys, especially from mesquite and the acacias, are generally regarded as the best, being very white and of finest flavor and aroma. These honeys solidify very quickly when extracted from the comb. The alfalfa honey of this region is usually darker than wild honey, or alfalfa honey made in more northern localities. Its flavor and aroma are very good, and it solidifies less quickly and completely after extraction than wild honey.

Consumers, for conventional reasons, usually prefer their honey in syrup form; and in order to liquefy the solid extracted article, the five gallon cans in which it is stored are, as a rule, placed in boiling water, requiring several hours to liquefy. This process darkens and alters the flavor of the honey, materially injuring its quality. In order to determine how to liquefy honey with the least injury, a five-gallon sample of solid mesquite honey was thoroughly mixed and divided into quart Mason jars. These samples were then placed in vessels of water heated to various temperatures, and kept there no longer than was necessary to reduce them to the liquid condition. They were then judged and analyzed, with a result indicating that the lowest temperature employed, 130 degrees Fahrenheit, affects the qualities of the honey least. Liquefaction at this temperature, however, was very slow, was not complete in 6 hours, and was not permanent. At boiling temperature, on the other hand, the solid honey was rendered very fluid in 3 hours, its color and taste being damaged, and its chemical composition changed. The lowest temperature at which quick and permanent (for 4 months) liquefaction was secured with least damage to the honey was 160 degrees; 150 degrees give better results for quality, but the honey did not remain liquid so long.

These statements show that the prevailing practice of liquefying five-gallon cans of granulated honey by putting them into boiling water is damaging to the quality, and, presumably to the market value of the product. As long as customers demand their honey in liquid condition, it should be converted in a bath of not to exceed 160 degrees Fahrenheit; and the lower the temperature employed, the better. The necessity of doing this, however, is not entirely apparent. Pure extracted honey in this region always granulates, particularly in cool weather; and the granulated condition is evidence of its purity. The usual adulterants, sugar syrup and glucose, tend to keep honey in liquid form. This fact being known, customers, especially where honey is liable to adulteration, should prefer their honey, evidently pure, in solid form. The marketing of solid honey requires packages which permit free access to the contents. Barrels for bulk and wide-mouthed cans and jars of the style now much used to contain semi liquid products, would be suitable for the marketing of solid honey, excepting in the latter case that the cost would prohibit For retailing small amounts, a recent device consists of a bag of stout paraffined paper, into which the newly extracted honey is run and allowed to solidify. Such a package is cheap, convenient to use, and capable of artistic decoration pleasing to the prospective customer. Commercially, it would seem that there is as good reason that honey worth 5 cents a pound, wholesale, should be bagged for retail trade as that rolled oats, for instance at about the same price should be similarly put up for sale. The use of bags is perhaps more possible here than elsewhere, because of the unusually solid character of our honey.

The adulteration of honey, in Arizona, is not commercially possible, for the excellent reason that freight rates so enhance the price of glucose and sugar that these adulterants can not be profitably used. For instance, the average wholesale cost, laid down, of white sugar during 1902, was 4⅞ to 5⅛ cents a pound, and of a good grade of glucose was 4½ to 4¾ cents a pound; while the prices obtained by the honey associations for their product in carload lots, were from 4½ to 5⅛ cents.

This has been the commercial condition for years past; and while it continues, the fact that honey is from Arizona is sufficient guarantee of its purity. Water, indeed, might be mixed with an especially dry product, but fermentation would be too likely to punish such dishonesty.

In brief, therefore, it appears that Arizona produces a limited amount of superior honey, containing minimum moisture, maximum sugars, very little non-saccharine substances, and, usually, of most desirable color, flavor, and aroma. This product is disposed of mostly in carload lots at low prices to manufacturing bakers and confectioners in the East, who, doubtless, are quite well aware of its value. By liquefying at too high a temperature, or by clumsy handling of the solid honey, its good qualities are often so injured or handicapped that the product is at a disadvantage in retail.

The by-products of honey are of considerable importance. Wax is sold in considerable amount, at about 30 cents a pound; and some bee-keepers work up their waste and washings into vinegar. Theoretically, one pound of average honey, worth 5 cents, should ferment to form about two gallons of three-per-cent vinegar, wholesaling for about 10 cents a gallon. However, the ordinary fermenting-vat employed consisting of an alcohol-barrel with open bung, requires as long as two years to complete the process; and the cost and care of barrels, delay in returns, and limited local market, discourage manufacture.

The crude honey obtained by means of the solar extractor from cappings and waste is usually fed back to the bees. On account of the excessive heat in these extractors (as high as 220 degrees F. noted by one observer) this honey is usually scorched, and unfit for sale.

STINGLESS BEES CAPABLE OF RANKING WITH APIS MELLIFICA AS A COMMERCIAL ASSET.

THE following is an extract from a letter received from Mr. W. K. Morrison, who has been making some investigations for us in the West Indies and South America. Mr. Morrison is, as you will see, making arrangements to ship the bees to the United States. Of course, we shall get a shipment if possible. Further particulars will be given later.

I want to say that I now have right here the long-looked-for, come-at-last, stingless bee, capable of ranking with *Apis mellifica*, as a commercial asset. It is about the same size as *A. mellifica*, and of a fine leather color, in fact, there is very little difference between it and the leather colored Italian. If a cross can be effected it ought to produce a wonderful race of bees. The colonies can be increased by the usual artificial plan. I have no doubt they can be sent to the United States with careful handling, and I have so far progressed that colonies can be sent to New York about May 1, 1904. These bees bear domestication even better than our bees, and ignorant Venezuelans keep them without difficulty. They have been known to travelers for at least two centuries. They have never been carried outside of South America, not even to the West Indies, for the difficulty of transportation has barred the way. In Florida and the South they ought to succeed, and perhaps in the North, when we know their habits. I have been in pursuit of these bees for almost 13 years, and, in fact, beggared myself to get them; and, when about to give up in despair, here they are within the limit of civilization.

Princestown, B. W. I. W. K. MORRISON.

GENERAL
CORRESPONDENCE.

WINTERING INDOORS IN A MILD CLIMATE.

Is Noise Detrimental to Bees in a Repository?

BY L. C. ROOT.

[The writer of this article, Mr. L C. Root, is a son-in law of father Quinby. Langstroth and Quinby were the two American pioneers in bee-keeping, the latter being the inventor of an excellent closed end-frame hive, one that is still used to a considerable extent in Central New York. Mr. Root was associated with Mr. Quinby during his successful work as a bee-keeper, and after the latter's death he revised his "Mysteries of Bee-keeping," a work that is still one of the standards in bee culture. In latter years, as he says, he has given up bee-keeping to a great extent, having devoted his time and interest to other pursuits.

It is a gratification to know that his old fondness for bees has come back, for he brings with it a ripe experience of many years of successful management of bees.—ED.]

It is upon the stocks that winter well and come out in the spring strong and populous that the bee-keeper must depend for his profits. No new way of wintering should be disregarded by those who desire success.

Some experiences during the last two seasons have led me to change my views on wintering bees, and the result may be of interest to your readers.

Although living in the heart of the town I was lonely without my bees; and as an experiment I secured in the spring of 1902 a single colony, and placed it in the loft of my barn. During the season I made from this stock an artificial swarm and took 100 lbs. of surplus in sections, both colonies being left in good condition for any experiment in wintering.

The hives were placed on the south side of the stable, which is in a protected location, affording the bees frequent flights, for in the south of Connecticut there are often mild and sunny days even in mid-winter. A fire is kept in the lower room of the stable in severe weather, and this, with the animal heat constantly radiated, maintains an even moderate temperature. The advantage of this position lies in the fact that it is a compromise between the exposure of outdoor wintering and the confinement of the usual indoor practice.

Two horses belonging to a physician are stabled directly under the hives; and as feed is kept in the loft, and all stable work done in the barn, the bees are subject to disturbance at all hours of day and night. Even with other conditions in their favor I did not believe it possible that bees could winter well in a location when they would be so continuously disturbed. Much to my surprise they came through in extremely good condition; in fact, they wintered so well that I have increased them during the present season to eight colonies, although I attribute part of my success in securing this increase to my good fortune in obtaining extremely good Italian queens to supply the new colonies.

If it can be proved that noise and jarring are not detrimental to bees in winter quarters, the knowledge may be useful to bee-keepers of all classes; yet my chief motive in relating this experience is that it gives encouragement to those who, like myself, have but limited room, and can not keep bees except in a building where disturbances are unavoidable.

Of course, this is the result of but a single year and with a small number of stocks; but this fall, in addition to the eight mentioned above, I have four others which were recently given me by a friend. The latter stocks have but little honey, and must be fed during the winter, one of them depending entirely upon unsealed stores. My indoor apiary now occupies the entire south and east sides of the loft, and I am looking forward to the results of a second winter with much interest.

Stamford, Conn., Nov. 17.

[You need have no fears whatever that disturbance below will have any detrimental effect upon the bees. For several winters we have had one hundred colonies in a room beneath our machine-shop, where there was heavy machinery rumbling overhead, trucks running back and forth, and occasionally a heavy casting dropped or dumped on the floor. This disturbance keeps up ten hours a day, six days in a week, through the period of confinement. As our readers know, the bees in this shop cellar have wintered remarkably well. The consumption of stores has been very light; and the results all in all have been so gratifying that we have been seriously considering the matter of wintering all our bees indoors; for, unless we are very much mistaken, indoor bees do not consume within ten pounds as much stores as bees outdoors. Ten pounds of syrup ripened up to about eleven pounds to the gallon will mean a saving of 60 cents per colony, for I am including the cost and fussiness of feeding. On 500 colonies that would net the Root Company $300.

But you suggest another thing, for bee-keepers located in mild climates Indoor wintering is not satisfactory where the winter is comparatively mild; but if the bees can have a flight when it warms up outdoors, same as your bees, it does not matter how warm it gets; they can fly out, cleanse themselves, and return to the hives; and it is certainly true that for very cold snaps a stove inside of the building would be an advantage. Years ago when we were trying a house apiary on a similar plan, we found that a stove within the bee-room was too much of a good thing. The bees would feel the *direct radiation* of the heat, and warm up to an activity that would start them flying out into cold air where they would chill and die. But in your case the stove was in a *separate* room, and the direct effect of it would be to moderate very gradually extremes of temperature. Your plan of combining the advantages of indoor and outdoor wintering in your present locality would give much better results than if the bees were shut up in a cellar, the temperature of which could not be kept down to the 45 degree mark. Doubtless if you were back at your old locality in New York you would think the indoor method of wintering equally good or better.—ED]

MODERN QUEEN-REARING

As Practiced at the Root Co.'s Yards; a Brief and Comprehensive Treatise on the Latest and Best Methods, Gleaned from all Sources.

BY GEO. W. PHILLIPS.

In writing the following articles on queen-rearing I do not desire to claim absolute originality for myself or my employers. Instead of setting to work to invent a system of our own, we have endeavored to select the best points from systems already in vogue and combine them into one harmonious whole. True, here and there weak points have been strengthened, objectionable features discarded, and new additions made in order to bring the system described up to its present state of relative perfection; yet we have no desire to hang on to these improvements; and should further experience show any thing which we have described and recommended to be objectionable, or should plans be set forth by others which, in our opinion, are more desirable, we shall be perfectly willing to forego our present system and adopt and recommend the best.

PREPARING COLONIES TO ACCEPT CELLS.

The following are four different kinds of colonies which may be used to good advantage in building cells:

Queenless Bees.—In order to get a colony of queenless bees to do good work in building cells, there must be an abundance of bees of the right age and a condition of prosperity. Remove the queen; insert a division-board feeder, and replace all combs of unsealed brood and eggs with frames of sealed or hatching brood from other colonies. This serves a twofold purpose: It relieves the nurses of the work of feeding the unsealed larvæ, thus forcing them to concentrate their energies upon the prepared cells, and, besides, the hatching brood soon materially increases their numbers.

A colony with a caged queen.—Instead of removing the queen from the colony, a better way is to cage her and let her remain in it. In doing this, see that the tin covers the candy-hole in the cage. See illustration (Fig. 1). Five days after the cells are accepted, slip a perforated zinc cage over them as described in the next illustration, and turn the tin around so that the bees can have access to the candy and release her. In putting on the perforated zinc cage, be careful not to jar the cells. Fasten it on to the cell-bar by means of four $\frac{5}{16}$-inch nails —two on each side—pressing them in with the thumb or hive-tool. Don't attempt to hammer them in, as this action will injure the cells. The perforated zinc cage could be put on and the queen released the day after the cells are accepted; but the cells will then be unsealed, and the nurses will not be able to get at them as readily. Various experiments have convinced me that cells thus caged while unsealed are likely to be somewhat smaller than those to which the bees have unrestrained access. When once they are sealed, however, there is no danger on this score.

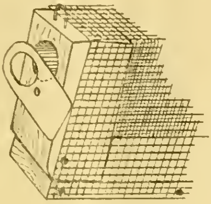


Fig. 1.

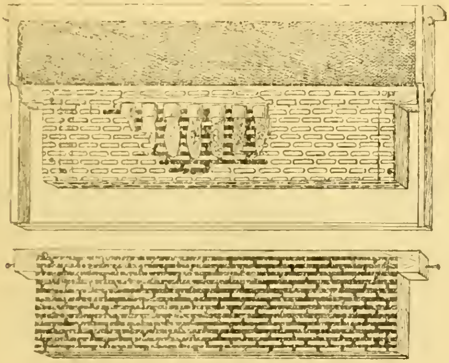


Fig. 2.

It may seem strange to some of the more inexperienced readers of GLEANINGS that a colony with a good fertile queen will consent to accept and care for cells; and so it may be well for me, before I go further, to notice the position that the queen occupies in the colony. This is twofold; namely, that of mother and mistress respectively (if I may be allowed to use the latter term). Wherever she has access, the production of drone comb, drones, and queen-cells will be kept under control; but whenever she begins to fail (bringing about the supersedure impulse), or she is excluded from any section of the hive by the use of perforated zinc or in any other way, the production of these in the part to which she has no access becomes a comparatively easy matter. It is by taking advantage of this fact that we have the key to the situation and are able to bring about the ideal conditions for queen-rearing at will.

The upper story of a strong colony.—The plan as recommended by Mr. Doolittle is certainly a good one. For those living in the South, where the weather is warm, and colonies can be brought up to their maximum strength easily, and kept at that for an indefinite time, the super plan should prove a success in the hands of all. I should like to have some of those who object to the Doolittle upper-story method of rearing queens see the way it works in Jamaica —see the percentage of cells accepted, and their superior quality. I make the assertion, and do it without fear of successful contradiction, that queens may be reared in upper stories, equaling in every respect the very finest reared by the natural-swarming and supersedure impulses, or any of the other methods in vogue.

A divided brood-chamber.—No one should attempt to raise cells in upper stories unless his colonies are strong—*very* strong. Where this condition of maximum strength is not to be easily had — as in the North, where the building-up of colonies is a comparatively hard matter, and where queen-rearing operations are often checkered on account of unpleasant variations of climate —a brood-nest, divided into sections with perforated zinc, should be used. For this purpose take a hive of not less than ten-frame capacity; nail on the bottom-board, and make two tight-fitting, perforated, wood-bound zinc division-boards. They should be made to fit so nicely that, when the hive is closed, no bee can find a passage above, below, or around them. Place them parallel in the middle of the brood-nest in such a manner that the same is divided into three equal compartments — one on each side of them and one between. Each of these compartments will be capable of containing three frames. The central one is for two frames of brood and a frame of cells, and the outer two are to be occupied by the queen, she being transferred from one to the other as occasion demands.

Thus the frames will be kept well supplied with brood.

The advantages of "queen-right" over queenless bees as cell-builders ought to be plain to every queen-breeder. First, to remove queens from strong colonies means practically no honey from them for the season. Second, where queens are reared in large quantities these numerous queenless colonies become a severe tax on the rest for brood, and, besides, entail additional work on the part of the apiarist. Third, there is always danger of having the bees find some unsealed larvæ, unobserved by the bee-keeper, in the combs of sealed brood given, and over these they will undoubtedly build cells, which, if they are not discovered and destroyed in time, will soon hatch and do mischief among the good ones. This also necessitates vigilance on the part of the apiarist. Fourth, there is the risk, if only sealed brood be given, of having at some time or other to contend with fertile workers in colonies which are thus kept constantly queenless. Now, all these objectionable features are eliminated by using queen-right colonies. Honey can be stored as usual; no brood need be supplied, as each colony has a normal laying queen; no fear need be entained of cells being started other than those given by the apiarist; nor is there any risk of having to contend with fertile workers. There are some bee-keepers, however, who never seem able to make a colony with a laying queen work satisfactorily at cell-building. These had better use one of the two kinds first described. It is unnecessary to add that all queen-rearing colonies must be fed when honey is not coming in from natural sources.

PREPARING CELLS TO GRAFT.

Every up-to-date queen-breeder is familiar, or ought to be, with the Doolittle method of queen-rearing. As soon as this is mentioned, the mind instinctively recalls lamp, melted wax, rake-tooth, water, etc. Many of us fellow bee-keepers know what it is to dip and twirl and pull off those cells hour after hour. Now, the method here described is, in essence, the Doolittle. True, it is metamorphosed, yet it is but an outgrowth of the old, and the principles involved are the same as those set forth by Mr. Doolittle years ago. The illustrations given in this are so self-explanatory as hardly to need comment. A represents a section of a wooden cell-cup. The hole is made in a round wooden block ¾ in. in diameter and $\frac{9}{16}$ in. long. The hole itself is $\frac{13}{32}$ in. in diameter, and $\frac{7}{16}$ in. deep, and the inside is coated with a thin film of wax.

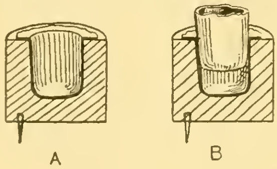


Fig. 3.

In using the wooden cell-cup, one is relieved of the necessity of making wax cells. In it one has an everlasting cell. All that it is necessary to do in order to use it again is to trim off the out-growth after the virgin hatches, and let the bees have access to it in order that they may remove the residue of royal jelly. If they get out of shape at any time, they can be re-formed by the use of a cell-forming stick such as is illustrated in Fig. 4.

Will bees accept wooden cell cups as readily as those made of wax? When the former are kept in good order, they will. I had some doubt about the matter at the start, so did one of my assistants in the yard; and so we made a series of experiments which all proved that one was as good as the other. In the last of these, two frames of each kind were used. Upon examination we found that the first one of each kind had 10 cells accepted (14 were given), and the second had 14 each.

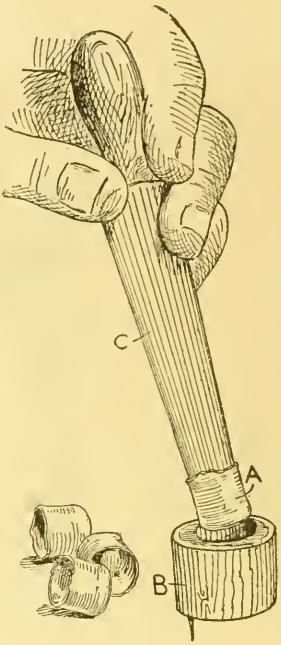


Fig. 4.

Bee-keepers are of all kinds, and very often what proves a success in the hands of one proves an absolute failure with others. There are some who will make a success in using the wooden cell cups, and others who, for one reason or another, will fail to do so. In the latter case, a wax cup can be used in conjunction with it as shown in section *b*, Fig. 3. These wax cell cups may be as frail as natural embryo queen-cells, as their base is completely protected by the block in which they are inserted. Mr. Huber Root, one of the youngest members of The A. I. Root Co., has invented a little machine by the use of which thousands of these cell cups can be made in an hour. The method of placing these cells in position is distinctly shown in the adjoining illustration. The cell-stick shown is also used for re-forming wooden cell cups as described above. The method of fastening these wooden blocks to the cell-frames is simple and effective. The projecting nail-points in the bottom of each, as shown in the illustration, serve the purpose of pinning them in position. It is an easy matter, and requires very little pressure to get the nail-points to penetrate the soft pine horizontal bar.

To be continued.

MODERN BEE-KEEPING IN ARIZONA.

Honey Production and the Making of Alfalfa Hay on a Large Scale.

BY C. K. ERCANBRACK.

I send by this mail some photos of scenery taken by myself near my apiary, now located near Lovelocks, Nevada. Figs. 1 and 8 show the bees of Thorne & Ercanbrack in winter quarters for 1903. The apiary consists of 300 colonies, all in eight-frame Hoffman hives, covers and all just as made by the Root Co. The hives and frames are exactly alike, and all, of course, self-spacing. These hives are in rows, facing each other, 4 ft. apart in the row, and the rows 8 ft. apart, and are run for extracted honey only. We have no swarms, so the tall trees seen are no detriment to our way of managing.

With our frames all alike, and our hives in parallel rows, and but 50 feet from our extracting-shed, one man with his Daisy barrow handles all these colonies and their crop. A boy turns the extractor, a four-frame one.

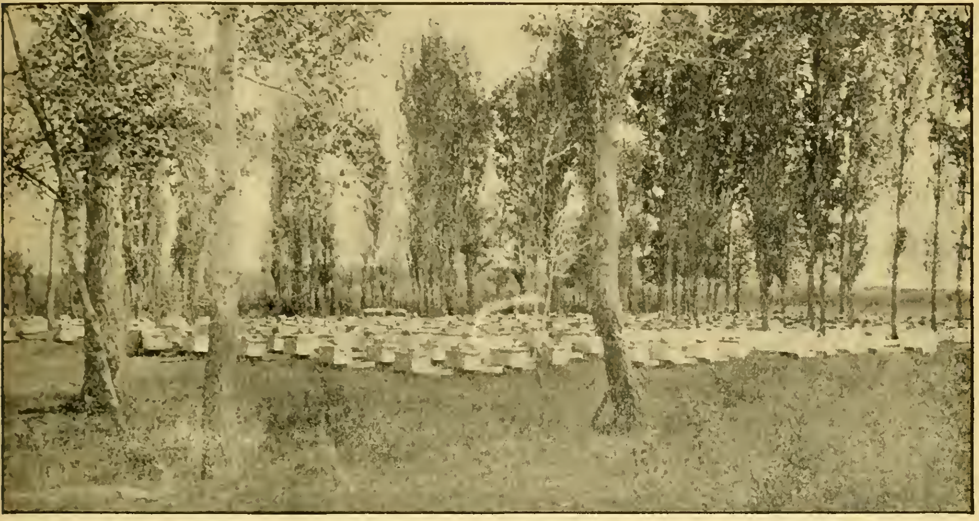


FIG. 1.—THORNE & ERCANBRACK'S APIARY OF 300 COLONIES, NEAR LOVELOCKS, NEV.

Fig. 2.—Here under these tall cottonwood trees is piled our ten-gallon extract-

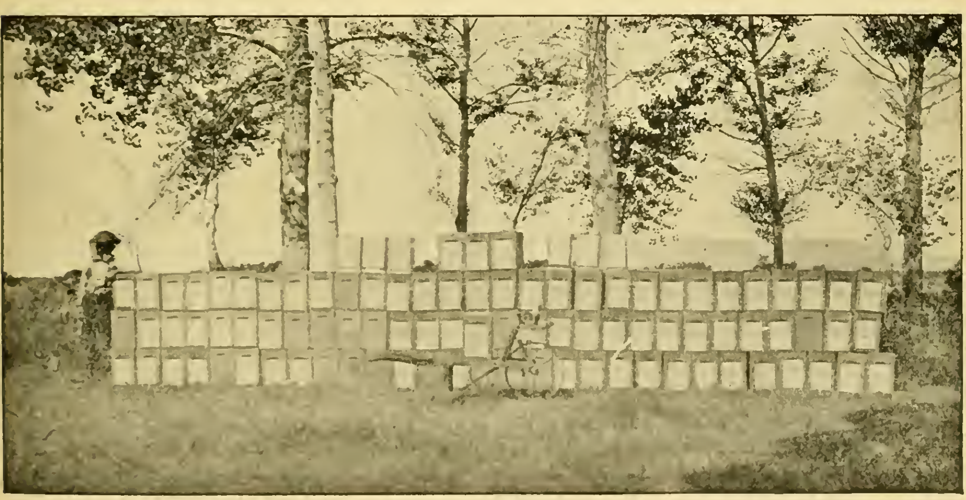


FIG. 2.—TWENTY TONS OF ALFALFA HONEY PILED UP READY FOR MARKET.

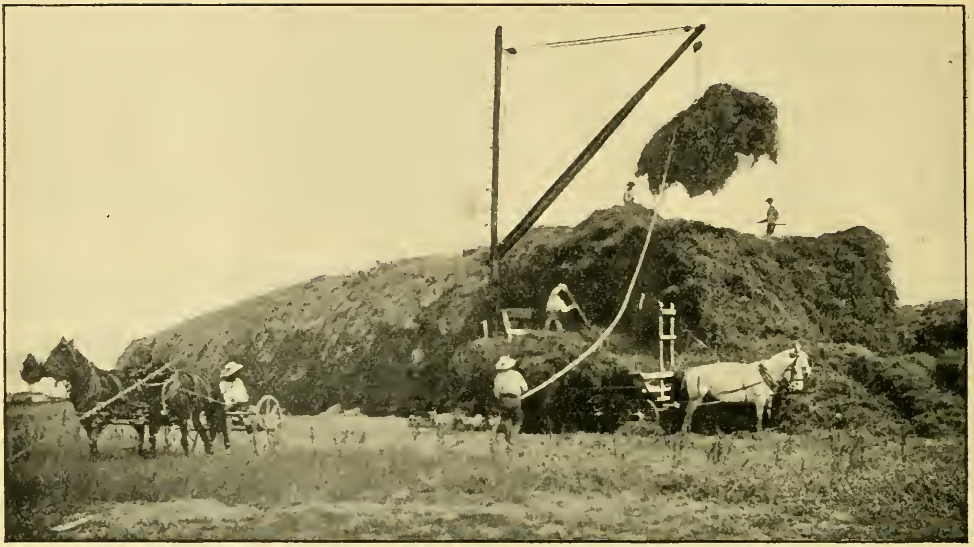


FIG. 4.—THE WAY ALFALFA HAY IS STACKED ON 1000 AND 5000 ACRE FARMS IN THE WEST.

ing-cases, some 20 tons, ready to be marketed. Each can and every case has a large label thereon, informing the buyer that it is "Pure Alfalfa Honey, gathered by bees, and the same extracted by machinery," and produced in Lovelocks, Nevada, by Thorne & Ercanbrack.

The Daisy barrow, seen in the picture, has been in use two years, and has wheeled and rewheeled honey to the amount of 280,000 pounds, and is good for ten times the service it has already seen.

Another picture* shows Thorne & Ercanbrack at their apiary home, a shed made bee-tight, of rough boards, 10×15 feet. For four months our stove is a coal-oil burner; our chairs, bee-hives; our sofa, a wheelbarrow; and our beds, hammocks swung to free us from bedbugs and poisonous insects. The thermometer reaches nearly 100° each summer day; but our nights are invariably cool, and blankets are always necessary.

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* This was too poor to reproduce by half-tone, and hence is not shown.—Ed.

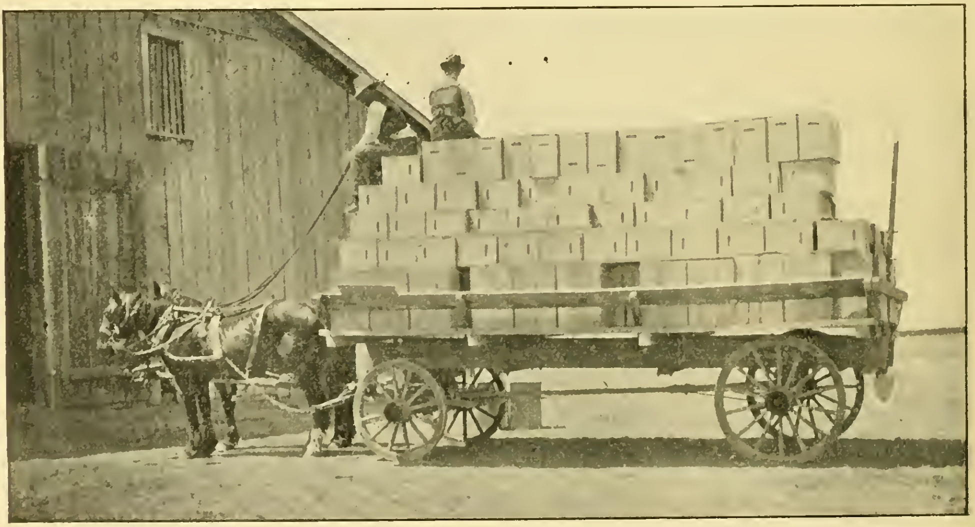

FIG. 5.—A LOAD OF TWO HUNDRED TEN-GALLON CASES ENTERING THE RODGERS BARN SHOWN IN FIG. 6.

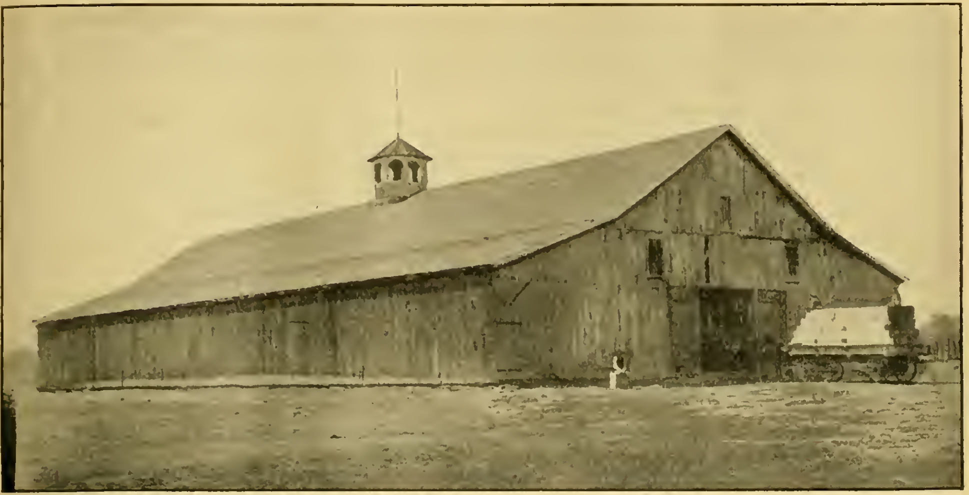

FIG. 6.—BARN FOR THIRTEEN-THOUSAND-ACRE FARM; LARGEST BARN IN NEVADA.

Irrigating-ditches run all around us, and water is abundant for man and bees. Our neighbors are the Piutes, a friendly tribe of Indians, now nearly extinct. For enemies we have mice, bee-martins, magpies, and foul brood. Ants and moth-millers can not exist here, or do not. The bedbug, tarantula, and scorpion are more numerous than harmful, while the native rattler once in a while gets in his work and makes the use of liquor a necessity then. This is as things are.

Fig. 4 shows how the alfalfa-farmers handle hundreds of tons a day with few hands. Five men can keep five or six teams busy hauling to the stack. The load of hay is lifted at two or three grabs of a huge fork, and raised to a height of 40 feet to a stack, and there placed in proper position. These stacks of alfalfa hay are, many of them, 400 feet long. One now in place is 900 feet long; and when the negative I made of it is printed I intend to send you a copy. These hay-handlers become expert, and command high wages. Three dollars a day was paid to some this season.

Alfalfa hay is in good demand here. It sells in stack, loose, at $5.00 to $6.00 a ton; and as three crops are raised it is a mint to the raisers, for it grows for twelve to fifteen years without reseeding. It is cut one day, raked the next, and is in the stack in less than a week.

Figs. 5 and 6 show the largest barn in

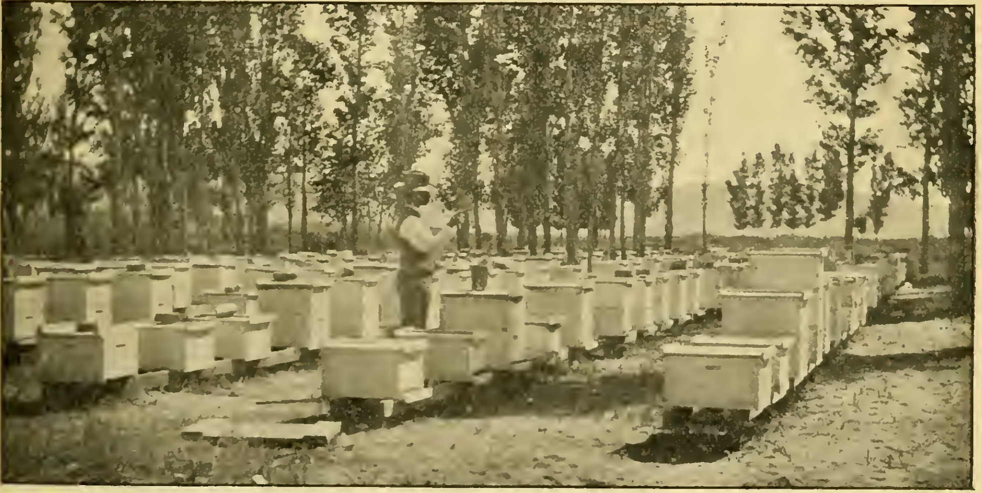

FIG. 8.—A NEAR VIEW OF THE THORN & ERCANBRACK APIARY, NEAR LOVELOCKS, NEV.

Nevada, probably. It covers nearly half an acre, and protects the farming tools, and houses the grain of a 13,000-acre farm. It is a rude affair, but substantial, and under its cover we stored our one thousand ten-gallon cases this season. It belongs to the farm of Arthur Rodgers, a San Francisco attorney who engages in rural pursuits while poring over legal lore. The hay-wagon entering this barn contains some 200 ten-gallon cases, and perched thereon are the apiarists before mentioned.

Fig. 7 shows the lively up-to-date city of Reno, Nevada, as seen from a hill back of the residence portion. The Truckee River is seen in the foreground. The smoke from two trains, passing as the writer was pressing the bulb, can be seen at either end of the view. Reno is the principal city in the State, although not the capital.

Watsonville, Cal.

[This collection of pictures gives a fair idea of bee-keeping and alfalfa-growing in the irrigated regions of the great West. I have seen dozens and dozens of ranches a good deal like that shown in these views; but I regret that I have not seen as many nicely arranged apiaries in new well-painted hives as appear in these pictures. Thorne & Ercanbrack are to be congratulated on their excellent system, their fine location, and their resultant crops of honey. It makes us Easterners almost wish that we could go out and squat right down beside them. But that would be wrong, morally and practically; no tenderfoot could go into these fields and divide the profits (the honey) without ruining the business of the original resident bee-keeper, and at the same time ruining his own chance of making any money. The only way for a tenderfoot is to go to some locality soon to be opened up to irrigation, and get on to the field before some one else does, or buy a bee range, providing he can have the assurance that somebody else would not come and steal what he has paid for.—Ed.]

FIG. 7.—THE RESIDENCE PORTION OF RENO, NEVADA. TRUCKEE RIVER IN THE FOREGROUND.

DRONE COMB IN SHAKEN SWARMS.

Why the Bees Build Drone Comb.

BY M. A. GILL.

Mr. Root:—I see quite often that some writer advises against the use of starters, claiming that it can not be done without filling the hives with worthless drone combs. Now, I practice forced swarming; but when I make a swarm I make a rousing big one, and usually hang over one or two frames from the parent hive that are filled with honey, larvæ, and eggs, so the queen does not get any immediate relief from those combs. I am not one of those who believe that bees *prefer* to store honey in drone comb, and I think the facts will bear me out.

Who has not noticed that any time before swarming, and after a colony has become quite prosperous, if a frame with starter only is given either at the side or in the center of the cluster, the bees will almost invariably build drone comb? It is not because the bees need the room to store honey, but it is because they, true to their instinct, want drones, as they intend, perhaps, to swarm later on. The time is ripe for them to do so, and they will build at least three-fifths drone comb in all the room you will allow them to have at this time. They do it because they want drones, not because they prefer it for storage purposes. Now, take this same colony that is building so much drone comb. It may, perhaps, have cell cups with eggs in (but it matters not if it doesn't), and shake it into an empty hive; hang in one frame of eggs and larvæ, and hang in frames with only starters, and see what the bees will do.

These bees have swarmed, and no one knows it better than they do. They have a fertile queen, hence no use for drones; but they want workers for the season's work, and the same bees that were so persistently building drone comb last week are now just as persistently building worker comb, and will continue to if the flow is good, until the body of the hive is full of comb, which it will be in from eight to ten days, and 95 per cent will be worker comb; and if the queen is a good one, from five to seven of these combs will be well filled with brood. The time is ripe for raising workers, just as last week was for raising drones. Of course, this swarm was given the super off from the old colony at the time of making that was full of bees, bait-combs, and full starters; so if they needed storage room they had it.

Friend Morrison, in criticising my plan, tells how much better I would like his plan of using a half-depth story filled with wired foundation; then, he says, in four or five days they are ready for a super. I will ask Mr. Morrison to go with me while I make a swarm, and bring along his little half story to put the swarm in.

Here is this pair of hives. They are eight frame hives, full of bees from the bottom-board to the top of the super, and I will warrant the two have fifteen frames of brood. One colony is very nearly ready to swarm, and the other has eggs in the cell cups. I am going to shake all the bees from both colonies into one, and take the queen from this one with one frame of brood to give the new swarm. Say, Mr. Morrison, you will have to set that little "riggin'" of yours to one side. It's too much like "baby bee-keeping" for me, for it won't hold half of these bees. Hand me that eight-frame hive with a full set of starters only, and remember there are two supers full of bees at work in the sections to go on top of this; yet you see my swarm is ready for the super now instead of waiting three or four days. When I come here again in six days it will need the third super.

Say, Mr. Morrison, isn't that swarm a whopper? Do you know I think there are 75,000 bees? Yes, they will be all settled down to business like a natural swarm. You see they got well mixed and daubed when I shook them. No, there is no danger of their going off. They won't go without a queen, and she can't go unless she goes on foot, as she is clipped.

You see, I have set one of those old hives of brood on top of the other, right behind where the pair sat, and facing the other way. When I come again in six days I will shake a lot more bees into this one from those old combs, and face it around here where it belongs. Next time I come around I will work all the brood into one hive, and put on a super; then I have the other hive to use somewhere else. No danger of this one swarming, and this colony will be just as good as Jumbo there the last half of July and all of August, at which time of the year our best surplus-honey season comes.

No, I don't do this with all my bees, but I do it with a great many when I don't want *any* increase.

Longmont, Col., Oct. 24.

[I have just read portions of your communication to our Mr. Phillips, who has had much experience in producing extracted honey in Jamaica. According to his experience bees will build drone comb after a swarm is shaken, about the same as before; that in the case of a young queen they are less inclined to build drone comb, and are less inclined to swarm. But he thinks he could not get along without full sheets. Mr. Morrison, who lives in a tropical country, finds his experience to be about the same. Is it not possible and even probable that local conditions have a great deal to do with this question?

Surely Mr. Morrison would not attempt to hive one of your double-decker swarms in a small half-depth brood-chamber. One who uses these chambers must, in the case of large colonies or swarms, use enough more of them to provide sufficient cubic capacity.

As I understand you, you think bees build drone comb because they want drones; but is it not also true that they also build drone comb because they want room?

Here is an article from Mr. Shepherd, which would seem to show quite clearly that bees build drone comb because they want room.—Ed.]

DRONE COMB — WHY BUILT.

In reply to a footnote on page 841 I will say that the reason for so much drone comb in our hives is this. When our honey-flow is on, a good colony of bees will increase the weight of their hive from 10 to 14 pounds per day. Now, if there is any comb to be built it will be store or drone comb, no matter whether you use light, medium, or heavy brood foundation. If the flow should not come with a rush, or if it should let up, the bees would build mostly worker comb. Say, *does* drawing the wires too tight in our frames cause the foundation to buckle? I mean where we use horizontal wiring. Now, if you are really sure that the wires drawn too tight *are* the cause, just make the end-bars of the frames $\frac{7}{16}$ or ¼ inch thick, and try them, and see if buckling foundation is not a thing of the past. The end-bars, only ¼ inch thick, are too light. When you pull the wire tight, the end-bars spring in as the bees keep adding weight. The end-bars spring in more and more; and how can buckling be helped? The wire *slacks*, and that tells the story. This is how it works with us. I lay no claim to its being the same all over the world, for the world is a large place, and conditions vary. Rules and regulations that work well on a New York or Rhode Island hilltop may not do so well in a Florida swamp.

Marchant, Fla. M. W. Shepherd.

[Thickening the end-bars might help the matter to a certain extent; but is it not this, after all, a rather expensive expedient? A better way is not to draw the wires too tight.—Ed.]

OUR HOMES,

BY A. I. ROOT.

Dear readers of GLEANINGS, I have some good news for you—yes, something that is worth more than honey or money or worldly possessions or any thing else. I am not exactly sure that we shall *all* rejoice, but I am sure we all *ought* to rejoice.* In the first place, I got hold of a letter from Bro. York, of the *American Bee Journal*, that he did not expect would ever be printed. I do not know but he will scold a little when he finds I have put it in GLEANINGS; but when he sees the good that is coming from it, I am sure he will say his old friend A. I. Root was right after all: and I do not know but it would be a pretty good idea for a lot of us to have a little experience meeting, or class meeting, as the Methodists call it, and shout praises to God for his great and wonderful blessings. The letter is as follows:

> *Dear Bro. Root:*—I must tell you that E. Whitcomb, of Nebraska, has been soundly converted—tobacco and all the rest cleaned out. He's praising the Lord, and teaching a Sunday-school class. We ought to rejoice that a man like Whitcomb has yielded to the pleadings of the Holy Spirit. I wish you would have him write his experience for GLEANINGS. It is interesting—yes, wonderful—and might help some other bee-keepers who ought to follow the same course. All honor to Bro. Whitcomb for taking this stand, and also for erecting and maintaining a family altar. He is not a man to be discouraged easily, so I know he will be faithful and win his crown at last.
>
> I just thought I'd write you about this, as perhaps you didn't know it. It's too good to keep.
>
> Sincerely yours, GEORGE W. YORK.

On receipt of the above letter† I immediately wrote to friend Whitcomb, telling him that I especially wanted something for the Homes department of GLEANINGS, if it was all true, and he felt like giving it. Now, please do not imagine that Bro. Whitcomb is a very bad man, from what has been said. On the contrary, he has a wide circle of friends; has filled honorably many very important places in the affairs of his State, and, if I am not mistaken, in the affairs of the nation. He occupied a very responsible position at the Omaha exposition, and, I think, was also president of the convention held there at that time. Few men at the present time wield a more powerful influence among the people than Bro. Whitcomb.

Now read the letter below; and may the Holy Spirit bless the message that Bro. Whitcomb seems glad to bring to us each and all; for it is the finger of God that has done this, and not the work of man.

> *Dear Brother Root:*—Yours of the 21st received, and in reply I will say that, bless the Lord, the news you have received at Rootville was true; yes, better than that. I bear within my heart the witness of the Holy Spirit that I am my Lord's and he is mine. I should fall very short of my duty at this time were I to fail to bear testimony of his loving kindness in this matter. While I am feeling sad over the fact that almost a lifetime, crowded with splendid opportunities, has been lost for God, yet I have before me the parable of the man who came at the eleventh hour, who also received his penny; and I am determined at this time, as God has been so very good to me, and inasmuch as I am at this time in perfect health, without an ache or a pain, that I will do what I can to compensate for the time which has in a measure been worse than wasted
>
> I bless God this morning that I had a praying mother whose prayers have followed me all through life; and I bless God for the praying mothers of America.
>
> My conversion came about in this way: The Olivers were holding a series of meetings at this place, and in company with a sixteen-year old adopted daughter I attended, more out of curiosity than otherwise. We had been quitting the meetings as soon as the preaching was done: but one evening as we passed out of the tent and down the sidewalk the choir began to sing that familiar hymn,
>
> Just as I am, without one plea,
> But that thy blood was shed for me.
>
> I had heard this hymn hundreds of times. I heard but these two lines on this occasion; but they sank deep into my heart, and something kept repeating them to me all the way home; and during the night that followed whenever I awoke, and that was possibly a hundred times, these two lines were ringing in my ears, and continued to. until I got down on my knees before God and prayed. "O Lord, be merciful to me a sinner." Oh how abundantly God did bless me when I uttered this prayer of the publican! I have repeated it many times since, and received God's blessing as frequently as I have uttered it.
>
> And, again, I have another thing to be thankful for. Preparing myself for God I have left off the use of tobacco, which I had used faithfully for fifty years, and a great deal of the time used as much as a pound a week. O my dear brother, I have so very many things to be thankful for that I do not know where to begin to enumerate them. God knows the desires of our hearts, and he will be able to sort them all out in his own good time. I have gone into harness, and am teaching one of the most interesting bible-classes here in Friend that I have ever been connected with; and in the study of these lessons, in explaining them, God has greatly blessed not only myself, but there frequently comes up from this interesting class a fervent "amen." Oh what a character David was! How near he seemed to get to God! and when he had sinned against God and his fellow man he did not do as many have since done, get as far away from God as possible, and go on committing other and greater sins, but he got right down before God and asked his forgiveness. And how willingly God has responded to his supplications! Here is a character which in many ways is worthy of emulation. David possibly did not have the Christian light and influence that we have in our day and age. This was many years before our plan of salvation had been worked out through our Lord and Savior Jesus Christ, and David possibly did not live in the light that we now have. And the Bible—what a wonderful book it is, as revealed to me under this new light and the blessings of God! How it is filled with blessed promises! and how prominent these promises stand out! and how many new things we are able to discover in them as we peruse them over and over again! and I bless God that he does interpret his own word to us whenever we get ourselves under the light which he has shed thereon.
>
> While I pray God that he baptize my heart with the Holy Ghost, and feel that he from day to day is answering my prayers, often with the measure running over. yet I beg an interest in your prayers as well as in the prayers of all professed Christians, that I may ever be faithful.
>
> By this time you are doubtless asking what became of the daughter. She has not been found wanting, and we bow together daily around the family altar, and our names are inscribed side by side upon the church-roll. There are yet others who are near and dear to us who are out of Christ; but as God does hear

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* In fact, the Bible tells us there is joy in the presence of the angels of God over such news as this Home Paper contains.

†Dear friends, this footnote is *supposed* to be said to you in Bro. York's absence. The editor of the *American Bee Journal* may make *mistakes;* but after reading the above confidential letter, can you not all agree with me in saying that Bro. York *means* to do right? He means to be fair and just toward all; and may God spare him and bless him in working on the pages of the only weekly bee-journal in America. May God bless him in his faithful efforts year after year, month after month, and *week after week* as he works for the *best* interests and good of us all.

and answer prayer it will be well with them in his own good time; and my faith reaches up to that blessed time when there will not only be joy in heaven but in my heart.

I thank you heartily, Bro. Root, for your nice and consoling letter. There are often times in our lives when a good Christian word fitly spoken fairly uncorks the vessel which admits rich blessings to our souls, and this seems to have been one of them.

Yours for God, E. WHITCOMB.
Friend, Neb., Nov. 23, 1903.

I took the letter over to the house, and read it to Mrs. Root. Before I got through she asked how old he was. I said I could not tell; but from the fact that the dear brother tells us he used tobacco "faithfully" for over fifty years, I imagine he must be about my own age. When one reads what he says about the two lines of that hymn that he kept repeating over and over when going home, and the two lines that were all night ringing in his ears, it reminds us of what father Langstroth said about his watch that kept saying "Quinby, Quinby," all night.

I suppose our readers would like to know more about the "Olivers" and their work. Perhaps Bro. Whitcomb or somebody else will tell us more about them.

By the way, since this thing has started is it not possible that the year 1904 may usher in a great wave of souls turning to God? Is it too much to ask God that, instead of reading in our dailies about "grafting" in our great cities, and bribery and corruption, strikes, etc., we may give the papers some news in the line of Bro. Whitcomb's new birth? May the Holy Spirit bless the message as it comes to the knowledge of the bee-keepers of our land.

And now just a word to our good friend Whitcomb. If you go on in the spirit in which the above letter is written, sooner or later you are going to get some hard knocks. Satan will protest; and discouragements and vexations will come in upon you in most unexpected ways. May the Lord be praised for the fact that you are a big broad-shouldered man, and, if I am correct, not easily put out, especially when you know you are right. Hold on to that Bible promise in that longest psalm of David, "Great peace have they that love thy law; and nothing shall offend them."

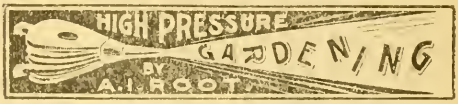
On page 60 of our issue for Jan. 15 appears an excellent picture of friend Whitcomb, and it may be worth while for the friends to turn back and look at his picture while they read his letter to the readers of GLEANINGS.

REMEMBER THE SABBATH DAY TO KEEP IT HOLY.

Dear Bro Root:—To-day was the first time I had the opportunity to read your Dec. 1st Home Paper on the question of the observance of the Lord's day. I think it is without exception, the best paper of any that I have read in over four years. If the same common-sense interpretation of the Scripture, and its application to the problems of life, were only followed by the followers of Christ, a great deal of energy that is now wasted could be better utilized in the kingdom; and if the spirit of charity with which it is saturated were only copied by all those who seek a solution of this perplexing question it would be more in accord with the profession which we make. I think your view is biblical, reasonable, and Christlike.

Fraternally yours, JESSE HILL.
Medina, Ohio, Dec. 8.

When I read the above letter, and found it was from the pastor of our own church, I shall have to confess it was one of my "happy surprises." In fact, after the paper was written I felt so much troubled about it I meditated carrying it to him, asking his opinion about it. For want of time I did not get around to it. Perhaps I may say to our readers that the writer of the above is about as able a man, from every point of view, to discuss and give an opinion on this "perplexing question," as he terms it, as any doctor of divinity or anybody else I know of.



HAIRY OR SAND VETCH.

My trip to California during the past season prevented me from making experiments with sandy vetch, as I proposed, but I still have the matter in mind. We extract the following from the *Country Gentleman* for Oct. 22:

> Many cover crops do not actually cover the surface of the soil. Soy beans and cow peas, for instance, especially when grown in drills, leave a large part of the ground uncovered. The vetch lies prostrate, and by its rapid growth very soon puts the entire surface soil out of sight. This is true even when seed is grown in drills.
>
> This prostrate habit of the vetch, along with its ability to hold fast wherever it gets a start, makes it one of the best possible crops to prevent erosion of soil that is liable to wash. One of the strongest legitimate objections to the cultivation of orchard soils lies in the fact that they sometimes do wash away badly during the spring rains. The proper way to prevent this of course, is by growing a good cover crop, and for this purpose we know of absolutely nothing so good as the winter vetch.
>
> It has often been said that the fruit-grower should choose one of the leguminous crops for an orchard cover, the reason given being that, when such a crop is turned under, it furnishes a considerable amount of nitrogen for the trees
>
> This nitrogen, moreover, is in a very readily available form, and can be made use of by the trees with certainty and rapidity. Among all the nitrogen-gathering crops, the vetch stands possibly at the head. At any rate, it seems to get the most nitrogen, although the question where it gets it remains an open one. In the experiments of Craig and Cavanaugh at Cornell, some very remarkable figures were developed. It was shown, for instance, that where cow peas contain an average of 52 pounds of nitrogen to the acre, the hairy vetch has secured 256 pounds
>
> The price of $7 a bushel, however, is not so bad as it seems. If one sows a bushel to the acre, then it is indeed expensive, and a bushel to the acre is what has been frequently recommended According to our experience, however, the seed can be sown in drills at the rate of one to one and a half pecks to the acre, and still give a perfect cover under ordinary conditions. This method of handling cover crops is one concerning which we will have more to say at some future date.

Accompanying the article in the *Country Gentleman* is a beautiful picture of a field of sand vetch grown for seed.

The above figures, calling hairy vetch worth five times as much to plow under as cow peas, are pretty strong; but from what

I saw of it where it came up wild in my potato patch in Northern Michigan, I am inclined to think it is about right. I hope a lot of our friends will try it on a small scale, even if they do not do any thing more. If it grows as it did up there, a peck to the acre would certainly be ample seeding. I should like to know what kind of a crop of potatoes it would produce if turned under in June, in full pod and blossom.

The following is from our friend Greiner, in *Farm and Fireside:*

> In one respect the winter (or hairy) vetch has proved a disappointment to me. It blooms fully and freely—in fact, it has been a mass of bloom beautiful to look upon all season long and is still blooming; but it does not set, and there will not be enough seed to reseed the ground after the present crop is gone. So if I want another patch (and I expected to plant a larger one this year) I shall again have to depend on the seedsman for the seed, and pay about $6 00 or $8 00 a bushel for it. Possibly the plant may produce seed more freely in the colder portions of Canada than here. As an orchard cover-crop, however, this vetch will be hard to beat. It makes a dense mass of green stuff early in the season. Now that the stalks begin to die out and decay, I find the soil underneath nice, spongy, moist, and soft, and the weeds thus far kept down or choked out. There is no question in my mind that when the vetch crop has died down, the soil will be in better condition than before.

At our place in Northern Michigan it produces seeds in the greatest profusion. In fact, there are so many little seeds that it seems to me they must be valuable as feed for stock. I notice some of the seed catalogs are offering the seed at $8.00 per 100 lbs.

THE SILK INDUSTRY OF BELDING, IONIA CO., MICH.

In one respect I am quite fortunate in my Notes of Travel; for if I make any mistakes, there are plenty of friends always ready and willing to set me right. And let me say here that one who travels with automobile or bicycle is often puzzled to know the name of a town he is riding through. On the railways we have the names of the towns in plain letters on the station buildings; and I have often wished there might be some place in every town to give its name. The following letters explain the matter. I give all three of them because each one contains some valuable fact omitted by the others.

> In your account of recent trip through Michigan you give to Greenville, Montcalm Co., credit for the "beautiful large factories producing silk, etc." You were entirely mistaken as to the locality. The "silk city" you saw was the city of Belding, Ionia Co., my market town. There are three large silk-factories, employing about 400 girls each, and several other (wood) factories employing about 1000 men. We consider this Belding of ours the future fine big town of this section. The silk-dealers of New York and Chicago, Belding Brothers and Richardson, have their headquarters here; and whatever silk thread you see with their names on is made here. The Belding Brothers several of them, were born and raised on a farm just north of the city. HARMON SMITH.
>
> Orleans, Mich., Nov. 4.

> You ask for information in regard to the silk-factory in Michigan. The factory was started a good deal as you started the bee-supply business, by two boys, or, rather, when they were boys they started to peddle silk thread. They have a lot of women working for them, and their rules are such as to elevate young ladies' minds. Taking it all in all, it is one of the most refined factories in existence. ROYAL HADLEY.
>
> Manistee, Mich.

> You spoke of a silk-factory in Greenville, Mich. I would say this. I believe Greenville has no silk-factory. But in Belding, a town a few miles distant, there are three or four large factories. While visiting there last August a friend of mine took me through one of them, and it was a grand sight, well worth one's time. Mostly girls are employed — I should think at least three or four hundred.
>
> Valparaiso, Ind. GERNAL SLAWSON.

Many thanks, friends, for setting me right; but, true to my nature (I am Yankee born, you may remember), I am not at all satisfied with the answer to my first question. Now, where does this factory get its raw material? Do they grow mulberry-trees and raise silkworms? Years ago we sold large numbers of a little book by Nellie Rossiter, about the care of silkworms. But the matter somehow dropped out of sight, because we were told the care of silkworms had never been made a success in America. Does the material needed for these great factories come from across the seas? Who will answer this question?

REPORTS ENCOURAGING

Ernest is off on a vacation of two weeks, and I am taking the liberty to collect favorable reports in regard to bee-keeping from different parts of our land. I do not know how long this department will be kept up; but I do think it is an excellent idea to compare notes and let people know what is being done, even on a small scale, in the way of getting honey in all sorts of localities. Please make your reports brief, so we can get in a good many of them. A postal card is quite large enough. The first one below is a good sample, and is interesting to me because the honey crops have been mostly poor in Florida for a good many years. There is another thing that interests me particularly. Friend M. has a Florida home, and a northern one in Tontogany, Ohio. He migrates back and forth every spring and fall; and his Florida home is a very pretty place, I can assure you, for I have been there.—A. I. R.

> *Mr E. R Root:*—If your father comes south, tell him I shou'd be pleased to have him call and see me again. My bees here did finely this summer.
>
> Sorrento, Fla., Nov. 30. R. L. McCOLLEY.

[Here is another:]

184 LBS. PER COLONY, AND INCREASED FROM 31 TO 36.

> I send you my report this year, with 31 colonies to start with. We have waited nine years for this crop of honey. I ran 15 for comb, and got 2100 lbs.; 16 for extracted, and got 3600 lbs., or an average of 184 lbs. per colony, spring count; increased to only 36.
>
> Rockton, Ill, Dec. 7. R GAMMON.

Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

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Oyster Shells, 100 lbs., 60c; 200 lbs., $1. Mica Crystal Grit, 100 lbs., 70c. **Wise & Co., Butler, O.**

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanan Co. are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

FOR SALE.—Fancy basswood and white-clover honey; 60 lb cans, 8c; 2 cans or more, 7½c; bbls., 7½c.
E. R. PAHL & Co., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fancy and A No. 1 comb honey from alfalfa, in Danzenbaker 4 x 5 sections. Write for prices. WM. MORRIS, Route 1, Las Animas, Col.

FOR SALE.—Extracted choice ripe clover honey in cases of two 60-lb cans each, at 8 cts. per lb.; 335-lb. bbls. at 7½ cts per lb.
G. W. WILSON, R. F. D. No. 1, Viola, Wis.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—To sell 2000-lbs. pure white-clover extracted honey, in 60-lb. cans, at 7c per pound.
N. A. KNAPP, Rochester, O.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us. EVANS & TURNER,
Columbus, Ohio.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.
THOS. C. STANLEY & SON,
Fairfield, Ill., or Manzanola, Colo.

WANTED.—Beeswax; highest market price paid. Write for price list.
BACH, BECKER & Co., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer. SEAVEY & FLARSHEIM,
1318—1324 Union Avenue, Kansas City, Mo.

BEE SUPPLIES.

Don't Wait Any Longer to Buy.

BIG DISCOUNTS FOR ORDERS NOW.

Write to us today and say what you want and get our prices. New catalog will soon be out. It is free. We also handle

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C. M. SCOTT & COMPANY
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POULTRY JOURNAL How to Make Poultry Pay. A paper worth a dollar, but will send it to you one year on trial, including book, Plans for Poultry Houses, for 25c. Sample copy FREE.
Inland Poultry Journal, Indianapolis, Ind.

Geo. J. Vande Vord

Queen-breeder. **Daytonia, Fla.**

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1901. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, $1.25; five for $5.00. Breeders of either race, $3.00 each.

W. H. Laws, Beeville, Texas.

QUEENS--ATTENTION!--QUEENS.

To have the best queens in every line, plenty of them, to merit your orders by accurate mailing, delivered in good order. Prompt attention is our fixed purpose. Full colonies and nuclei a specialty. Write for catalog and prices.

The Jennie Atchley Co., Box 18, Beeville, Tex.

For Queens from Best Italian Stock $1.00; select, $1.25.
Address J. B. CASE, Port Orange, Florida.

PAGE

IF IT'S PAGE STOCK FENCE,

the TOP WIRE is 3-16 inch in diameter, and a double-strength wire at that. So much stronger.
Page Woven Wire Fence Co., Box S, Adrian, Michigan.

THOUSANDS OF CHILDREN

are using **The Pony Sewing Machine**, and thousands more never heard of such a thing. Think of buying a machine that will really sew—making a Wilcox & Gibbs stitch—for **$2 50** It will hem sheets and pillow-cases, and do all sorts of plain sewing. Sent complete, with extra needle, upon receipt of price; or by mail for $2.85. Canada, 30 per cent duty.

For cut of this machine, see Dec. 1 issue.

F. J. ROOT, - 90 West Broadway, New York.

PARADISE

The editor of the Bee-keepers' Review has visited nearly, if not quite, as many parts of the country as has any bee keeper, and, while he has seen several excellent locations for honey production, he has yet to see the equal of some portions of Northern Michigan. For three years he has had these regions under observation, last July spending two weeks, with camera and pencil, right on the ground, and he is satisfied that, for the next 20 years, at least, this part of the State will be a veritable paradise for bee-keepers.

The December issue of the Review is a special number, devoted to Northern Michigan, nearly a dozen pages of descriptive matter and beautiful pictures showing up the bee-keeping capabilities of that part of the country—a country that, in many places, is not yet stocked with bees. Why eke out a scanty living in a poor locality, when there are rich fields unoccupied?

Send $1.00 for the Review for 1904, and you will get, not only this December issue, free, but all of the other issues of this year. In other words, as long as the supply holds out, all of its numbers of this year (1903) will be sent free to the man who sends $1.00 for 1904. This year and next for only $1.00.

W. Z. Hutchinson, - Flint, Mich.

Sloe Plum

Rarely offered by the trade. Stock very limited. Order before too late. Price for spring delivery, 3 to 4 foot trees, 50c each. In lots of 5 or more, 40c each. Grafting wood, postpaid. per foot 10c: 3 ft. 25c; 10 ft. 75c.

E. C. Green & Son, Medina, O

$5.95

SEND NO MONEY WITH ORDER.

We have advertised in Gleanings in Bee Culture many years, having found their subscribers among our very best customers, and to be conscientious and responsible. We are therefore going to make to the subscribers of this paper one of the most liberal propositions ever made, which is as follows: **This offer will not be made again, Order now.**

SEND NO MONEY **Cut this ad out and send it to us.** Give your height and weight. State number of inches around the body at chest, take close up under the arms, over vest, also number of inches around body at waist just above the hips, also number of inches around the body at (hips) largest part, also length of pants leg inside seam, from tight in crotch to heel, and we will send you by express this handsome fall and winter suit **FREE** When it arrives at your express office examine it carefully, try it on, and if you find it exactly as represented by us, strictly all wool, made in the latest style, for fall and winter of 1903, to be a better fitting suit, better made, more serviceable, more stylish, and better in every way than any suit you can buy of any other house in Chicago, or in fact from anywhere else, or of your local dealer at home at less than $14.00 to $16.00, pay the express agent our special price of $5.95. If the suit does not prove to be exactly what you want, satisfactory in every way, equal to suits that sell everywhere at $14.00 to $16 00, then ship it back to us and we will pay the express charges both ways. Understand, we do not ask you to send us one single cent with the order. **All that is necessary to do is to send us this ad, if you are a subscriber to this paper, give us your full measurement as indicated above, and we will ship you this handsome suit.** Do not be afraid you cannot take your own measure. Do not be afraid the suit will not fit you. Take your measure carefully and the suit will surely fit you perfectly. If it does not fit perfectly, if it is not satisfactory in every way, and the biggest bargain you have ever seen, and equal to suits that retail everywhere from $14 00 to $16 00 you need not pay one single cent or take it from the express office but you may send it back to us, we paying the express charges both ways.

Our 15 Day's Trial Proposition.

Wear this handsome suit 15 full days. In the meantime, compare it with suits your friends have bought at home or elsewhere, and if you do not find our suit superior in quality, style and tailoring, and general makeup, and if it is not worth more than what your friends have paid for suits at $14.00 to $16.00, return it to us and we will refund you your money, and pay all express charges so you won't be out one single cent. **Order today and wear a $16.00 suit at $5.95.**

THIS HANDSOME SUIT **is made of a fine quality of all wool black cheviot.** The coat is made in the semi-military fashion, round cut sack, like illustration; has broad padded shoulders, giving the shoulders a broad dressy effect; has double interlined canvas self sustaining front, is neatly lined with strong farmers satin, has four pockets, vest is single breasted, made in the best of manner with notched collar, nicely lined. The trousers are made full medium wide, cut over the latest pattern. This is a suit that keeps its shape, and will give the wearer the very best service. We use in this suit better lining, trimmings, interlining, stiffening and finish, than any other maker. We employ none but the very best of cutters and fitters, and we guarantee to give you a more stylish, a better made suit every way, shape and manner, than you can buy anywhere else without paying from $11.00 to $16.00.

OUR SPECIAL PRICE OF $5.95 **Barely covers the cost of the cloth, lining, trimmings and tailoring. We are making this special offer merely to introduce our clothing in your vicinity and to place one of our catalogues in the hands of every subscriber of this paper.** We are only able to make this extremely low price because of our extraordinary facilities for buying and manufacturing, and because of our large volume of business. **Order today, and with the suit we will send you one of our large complete catalogues;** or, if you prefer a suit different from our special $5.95 suit, as described above, write us for our clothing catalogue. State in your letter the kind of suit you want and we will send you samples.

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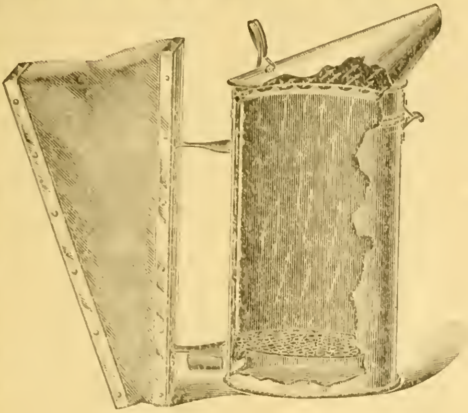


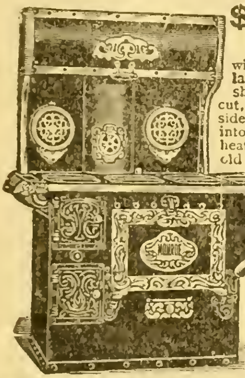
New Brodbeck Corneil

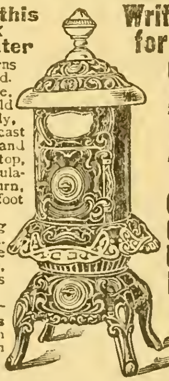
Double-Blast Smoker.

Patented Oct. 11, 1892.

We have now made arrangements by which we can furnish the Brodbeck patented features in our regular Jumbo 4 inch-barrel smoker. It has an inner barrel, or blast-chamber, in which the fuel is placed so that the fire does not come in contact with the smoker-cup proper. In use the blast in forced against a deflector from which it is then driven between the inner and outer barrel, and also through the grate and fuel. The direct effect of this is to create a double blast—a cold and a hot—to increase the force of the blast, and to prolong the life of the smoker because the outer barrel will be nearly cold. The smoke will not be quite so dense and pungent as in the hot-blast smokers of standard pattern; but there are some who may prefer a stronger blast, even if the smoke is less pungent. Price of the Brodbeck Corneil, 4-inch size, $1.50, or postpaid.......... $1.80.

The A. I. ROOT COMPANY, MEDINA, OHIO.





$11.95 for this large handsome steel range without high closet or reservoir. With large, high roomy warming closet, tea shelves and reservoir just as shown in cut, $16.95. **Reservoir** is porcelain on inside, asbestos covered on outside and set into a steel casing so that it retains the heat and keeps water much hotter than the old style. **The top of this big range** is 28x46 inches, has 6 cooking holes, large roomy oven 20x18x13 inches with square door so you receive full benefit of the large oven (we have steel ranges with much larger and smaller ovens, sizes to suit all.) **The body** of this high grade range is made of cold rolled steel, top and all castings of best No. 1 pig iron. **Grate**; we use improved duplex grate, burns wood or coal. **Nickle trimmings** are a band on front of main top, bands and brackets on high closet, tea pot shelves, frame and panel on oven door and clean out door. The nickle parts are all highly buffed and polished making the range an ornament to any house.

$3.90 for this Oak Heater just as illustrated. Burns hard or soft coal or wood. Has drawn center grate, corrugated fire pot, cold rolled sheet steel body, heavy cast base, large cast feed door, ash pit door and large ash pan, swing top, double screw draft-regulator. Nickle plated urn, top ring name plate, foot rails, etc.

We have heating stoves of every kind. Hot blast, air tights, the kind that retails for $3.00, for **95c.** Base burners at ½ the regular price.

Write for CATALOGUE

WE GUARANTEE this range to be the most perfect baker made as oven is asbestos covered, making an even and steady heat. We have steel ranges from $8.85 and up, 6 styles, made in all sizes.

OUR TERMS are the most liberal ever made. We will ship you any steel range, cook or heating stove, guarantee it to reach you in perfect condition, you can pay for it after you receive it, you can take it into your own home and use it 30 full days. If you don't find it to be exactly as represented and perfectly satisfactory in every way and the biggest bargain in a stove you ever heard of and equal to stoves that retail for double our price, you can return the stove to us and we will pay freight both ways, so you won't be out one single cent.

CUT THIS "AD" OUT and send it to us and we will mail you our free stove catalog. It explains our terms fully, tells you how to order. **Don't buy a stove of any kind until you get our catalogue and see our liberal terms and the lowest prices ever made. Write now.**

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PEACH TREES Fine, stocky, hardy, grown on the bank of Lake Erie, two miles from any peach orchards, free of borers and all other diseases. Large stock of **Apple, Pear, Plum, Cherry, etc.** Headquarters for **Ornamental Trees, Shrubs, Plants, Vines, Bulbs, Seeds.** 40 acres hardy Roses, including 45,000 of the famous **Crimson Rambler**, 44 greenhouses of **Palms, Ferns, Ficus, Roses, Geraniums, etc.** Mail size postpaid, larger by express or freight, safe arrival and satisfaction guaranteed. Direct deal will insure you the best and save you money. Try us. Valuable catalogue free. Correspondence solicited. 50 years. 1000 acres.

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Gleanings,
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Pearson's,
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Woman's Home Companion,
Good Housekeeping.

"Class B."

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American Boy,
American Mother,
Book-Keeper,
Cincinnati Enquirer,
Campell's Illustrated Journal,
Chicago Inter-Ocean,
Farm Poultry,
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Health Culture,
Michigan Farmer,
National Magazine,
Ohio Farmer,
National Stockman,
Pathfinder,
Pilgrim,
Recreation,
Rural Californian,
The Era,
Twentieth Century Home,
Tribune Farmer,
Witness, New York,
Household Ledger,
Boston Cooking School,
Practical Farmer,
Gleanings,
Men of To-Morrow,
Youth.

"Class C."

Country Gentleman,
American Agriculturist,
Tri-Weekly World, N. Y.,
Tri-Weekly Tribune, N. Y.,
Harpers' Bazar,
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Lippincott's,
Review of Reviews,
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Critic,
Chautauquan,
World To-day,
Week's Progress,
World's Work,
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People's Home Journal,
Good Literature,
Kansas City Star.

"Class F."

Latest Literature,
Ladies' World
Little Boys and Girls,
McCall's Magazine,
World's Events,
Hints,
Sabbath Reading,
Pets and Animals,
Normal Instructor,
Vick's Magazine,
Nickel Magazine,
Green's Fruit-Grower,
Four-Track News,
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American Poultry Advocate,
Metropolitan and R. Home,
Gentlewoman,
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Youths' Companion

Calendar and balance of this year free to new names. Just the present for Xmas......$1.75

In Making Up Clubs, Remember

That we accept either new or renewals at the same price, unless expressly stated that they must be new.

Success and any one of class "A" or "B"	$1.50
Success and any two of class "A" or "B"	2 00
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Any periodical in class "B" may be added to any club by adding 55 cents. For instance: Gleanings and Cosmopolitan would make a Gleanings club at $1 25 and you could add your choice of any magazine or magazines in class "B" by adding to the $1.25 offer, 55 cents for each one you wish to add.

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Any periodical in class "C" many be added to any offer by adding 90 cents.

Gleanings and any periodical in class "D" for	$2 75
Gleanings, Success and one of class "D," all for	3 00
Gleanings and any one of class "F" for	1.00
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Any one of class "G" may be added to any offer for 20 cents. Clubs may go to different addresses, if desired. **SAMPLE COPIES**--We have five tons of nice new magazines and periodicals of all kinds which we will send you postpaid three pounds for 20 cents. Prices quoted on any list submitted.

Address all orders to

C. M. Goodspeed, Box 731, **Skaneateles, N. Y.**

HOLIDAY OFFERS

Good Only Until Feb. 1, 1904.

In any of the following offers Gleanings or Recreation may be put in place of Cosmopolitan; or Cosmopolitan in place of Gleanings. You are entitled to ALL PREMIUMS that you would get by paying the full price direct to the various publishers, except on Woman's Home Companion.

1 00	Cosmopolitan, McCall's Magazine.
1 00	Cosmopolitan, Housekeeper.
1 00	Cosmopolitan. Ladies' World.
1 35	Cosmopolitan, Harper's Bazar.
1 00	Cosmopolitan, People's Home Journal.
1 25	Cosmopolitan Household Ledger.
1 75	Cosmopolitan, Etude.
1 25	Cosmopolitan, New York Witness.
1 00	Cosmopolitan, Union Gospel News.
1 75	Cosmopolitan, Christian Herald.
1 25	Cosmopolitan, New York World. T-W
1 50	Cosmopolitan, New York Tribune. T-W
1 05	Cosmopolitan, Inter Ocean.
1 00	Cosmopolitan, Hints.
1 25	Cosmopolitan, Recreation.
3 25	Cosmopolitan, Scribner's.
2 00	Cosmopolitan, World To-Day.
4 00	Cosmopolitan, Century.
3 00	Cosmopolitan, St. Nicholas.
3 00	Cosmopolitan, Country Life.
2 75	Cosmopolitan, Outing.
1 25	Cosmopolitan, Twentieth Century Home.
1 00	Cosmopolitan, Ohio Farmer.
2 75	Cosmopolitan, Review of Reviews.
2 75	Cosmopolitan, World's Work.
1 25	Cosmopolitan, American Boy.
1 25	Gleanings, Farmers' Call, Practical Farmer.
1 20	Gleanings, Farmers' Call, Ohio Farmer,
1 55	Gleanings, Farmers' Call, Country Gentleman.
1 50	Gleanings, Farmers' Call, American Agriculturist.
1 50	Gleanings, Farmers' Call, National Stockman.
1 50	Gleanings, Farmers' Call, New England Farmer.
1 25	Gleanings, Farmers' Call, Tribune Farmer.
1 00	Gleanings, Farmers' Call, World's Events.
1 00	Gleanings, Farmers' Call, Farm Poultry.
1 00	Gleanings Farmers' Call, Farm Journal.
2 25	Gleanings, Farmers' Call, Horse Review.
1 35	Gleanings, Farmers' Call, Hoard's Dairyman,
1 00	Gleanings, Farmers' Call, Farm and Home.
1 00	Gleanings, Farmers' Call, Farm and Fireside.
1 00	Gleanings, Farmers' Call, Four-Track News.
1 10	Gleanings, Farmers' Call, Little Boys and Girls.
1 10	Gleanings, Farmers' Call, Sabbath Reading.
1 50	Gleanings, Tribune Farmer, McCall's Magazine.
1 80	Gleanings, Tribune Farmer, Country Gentleman.
1 75	Gleanings, Tribune Farmer, Cosmopolitan.
1 00	McCall's Magazine, Free Pattern, Gleanings.
80	McCall's Magazine, Free Pattern, Housekeeper.
75	McCall's Magazine, Free Pattern, Sabbath Reading.
1 00	McCall's Magazine, Free Pattern, Household Ledger.
1 05	McCall's Magazine, Free Pattern, Woman's Home Companion
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Convention Proceedings—It is the endeavor of the American Bee Journal to give reports of as many of the bee-keepers' conventions as possible, especially those of State and National interest. This is indeed a most valuable feature, bright and helpful, as things are said at conventions by people that would never think of writing out what they know. No other paper attempts to report bee-conventions as does the American Bee Journal.

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Our Bee-Keeping Sisters—This department is only about a year old, and yet it is coming to be of great interest, especially to women bee-keepers. Miss Emma Wilson, who conducts it, is a successful bee-keeper of many years' experience, and knows what will help the women readers as well as others.

Hasty's Afterthought—This is by E. E. Hasty himself. He reviews, and comments upon, what has already appeared in preceding numbers of the Bee Journal, pointing out errors, and also commending what he deems worthy.

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From Many Fields—This department contains reports of the season, and small items of great variety, gathered up from almost everywhere. It is interesting reading, and often very practical and helpful.

Beedom Boiled Down—This has the cream of the current bee-literature of the day. It is an irregular department, appearing when there are items of importance that we feel should be spread before our readers. We are constantly on the lookout for the "cream," and "skim it off" for the benefit of the readers of the American Bee Journal.

Sketches of Beedomites—This is a biographical department We endeavor to give frequent life-sketches of the leaders in bee-keeping, and especially of those who have passed away, and who have been prominent in the work with bees.

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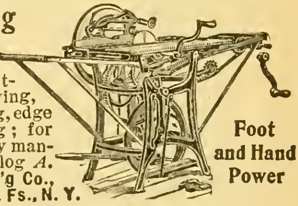

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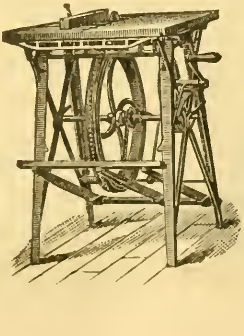

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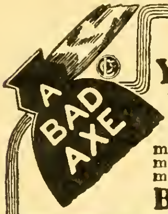

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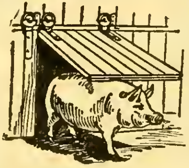

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SPECIAL NOTICE

Special Notices By Our Business Manager.

BASSWOOD-LUMBER SUPPLY.

I hope none of our readers have received the impression from various recent editorials on the failing supply of basswood for making sections that there is an actual shortage at present. If you have, I wish to disabuse your mind of such a thought. We have usually calculated our annual needs in basswood at about 1½ million feet, while we have bought during the past year 2½ million feet. We have a larger supply of dry lumber on hand, both of pine and basswood, by many thousand dollars' worth, than we ever had before. Don't you worry about our not having basswood lumber to make sections of as long as there is any to be had for any purpose. The amount of basswood used by all the manufacturers of bee-keepers' supplies combined is not more than two per cent of the total amount of basswood used for all purposes, and I doubt if it is one per cent. It is the enormous use of this timber for other purposes, increasing every year, that bids fair to exhaust the supply within a few years. The constant increase in value of other woods is what stimulates the demand for basswood, and forces the price of this up as well. The general level of lumber prices must be sixty to seventy per cent higher than they were five or ten years ago, figuring the per cent on the prices ruling then. Some grades have doubled in price; and this advance can not be wondered at when we consider the enormous annual consumption and the narrowing limits of the available supply. There may come slight reactions in price, but we shall never again see the low level of a few years ago.

Special Notices by A. I. Root.

PRICE LIST OF CLOVER SEED, BUCKWHEAT, AND OTHER HONEY-PLANTS, ETC.

As I have mentioned before, we shall issue no list of garden seeds this season. You can get the same seeds, however, of E. C. Green & Son, Medina, O., and they will furnish you a price list We shall, however, issue a price of seeds of honey-plants, hand potato-planters, strawberry-planters, etc. These will probably be ready to mail by the time this reaches you.

SEED POTATOES FOR 1904.

In view of the rapid advance in the price of potatoes, I think I must have got my prices pretty low on page 980, Nov. 15. In fact, some of them are now worth the price, $2.50 per barrel, for table use. As it is, we are sold out of all the early potatoes except Early Trumbull, Early Harvest, Hammond's Sensation, Freeman, and New Queen. The late potatoes we are sold out of except Lee's Favorite and State of Maine. All prices after this date will be, for the earlies $1.50 per bushel or $3.50 per barrel; for Lee's Favorite and State of Maine, $1.25 per bushel; per barrel, $3.00.

THE HAIRY WINTER OR SAND VETCH—VICIA VILLOSA.

We have just succeeded in getting a very low rate on the seed of the above plant, so we can furnish one bushel for $6 00; ½ bushel, $3 25; peck, $1 75; 1 quart, 25 cts.; pint, 15 cts.; ½ pint, 8 cts. If wanted by mail, add 8 cts. per pint or 15 cts. per quart extra for postage. I am very anxious that this new legume be tried extensively. I have never had any report from it in regard to its value for honey; but as it bears immense quantities of blossoms, something the shape of a locust-blossom, it must furnish large quantities of honey, and it begins to bloom just after fruit blossoms. We will send along with the seed full particulars, so far as we can learn, in regard to its cultivation. See articles in regard to it in this issue.

GINSENG AND ITS CULTURE.

Just now I am receiving more letters of inquiry concerning ginseng than any other one thing. The writers want to know if I would advise embarking in the industry. If so, what advertisers of plants for sale are reliable, etc.? So far as my experience goes, ginseng is the hardest plant to make grow of any thing I have ever tried. It is true it grows very well among my potatoes in Northern Michigan—that is, in newly cleared ground where the plants come up themselves. But I can not have a garden up there, because I am absent a great part of the year, and ginseng hunters are roaming through the woods almost all the time. I would not advise anybody to go into the business with the view of making money unless he expects to sell plants and seeds at the prices dealers are now asking for them. I do not know of anybody as yet who has made money by growing the roots for sale. The pamphlets and advertisements are all very misleading, and some of them are gross exaggerations. I have carefully examined the editorials of our leading agricultural papers, and they nearly all agree with me. And last of all, but not least, there is no demand for the roots for any *good* purpose. When the Chinese are converted to the gospel of Christ Jesus, as I pray and believe they will be in due time, the demand for ginseng at several dollars a pound will be gone. If you wish to invest a dollar or two in plants to experiment with, all right. One man who wrote had already invested in plants and seeds to the value of $100. Now, even if you should decide to go into the business, do not make any such investment until you have had a little experience first on a limited scale. We have two books on the subject — one worth 10 cents, and the other 50; but I have taken both out of our book-list, because I do not exactly approve of the industry. If, however, you want information on the subject, these two books I have mentioned will give you a pretty fair statement of the matter.

CONVENTION NOTICES.

The first regular meeting of the Kansas Bee-keepers' Association will be held in Topeka, Dec. 30. All persons interested in bee-keeping, whether members or not, are cordially invited to attend.
Topeka, Kan. O. A. KEENE, Sec'y.

All bee-keepers in Pennsylvania, interested in forming a thorough State organization, are requested to correspond with the undersigned.
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Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department must not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell strawberry-plants. Catalog free. NORTH STAR PLANT FARM, Cokato, Minn.

WANTED.—Second-hand Barnes machinery.
W. H. BRYAN, Roann, Ind.

WANTED.—A partner for bee-keeping on large scale. J. J. WILDER, Cordele, Ga.

WANTED.—To sell 15 colonies of bees in 8 and 10 frame Root hives; supers and fences complete; 4¼x4¼ plain. R. H. BURTON, Towson, Md.

WANTED.—To exchange pair Morgan horses for honey, bees, or hives. ELIAS FOX,
Hillsboro, Wis.

WANTED.—To sell at a bargain. Three incubators, one 2½ vertical engine, good as new.
G. ROUTZAHN, Biglerville, Pa.

WANTED.—A Barnes machine with cutterheads, to cut from ⅛ inch to 1½ in.; two 12-in. saws, 1 rip, 1 cut-off. G. C. CARTER, Freshwater, Va.

WANTED.—To sell 15,000 lbs. best white-clover extracted honey in 60-lb. cans, at 8½ cts. per lb.
WALTER S. POUDER,
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WANTED.—To sell choice alfalfa honey, in 60-lb. cans. Prices quoted on application.
W. P. MORLEY, Las Animas, Col.

WANTED.—A partner for bee-keeping on large scale. Excellent prospects, never failing honey crops. L. MARNO, Kingston, Jamaica.

WANTED.—To exchange modern firearms for incubators, bone-mills, and shell-mills. Address
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WANTED.—Names and addresses of those who want good books or sheet music. Ask for prices on what you want. M. T. WRIGHT, Medina, Ohio.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free.
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WANTED.—The address of all who are still in need of cartons. QUIRIN THE QUEEN BREEDER.
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WANTED.—To sell apiary of 200 colonies, and supplies sufficient for 300, with every thing needed for a well-equipped apiary.
W. J. YOUNG, San Cristobal, Cuba.

WANTED.—To sell 300 colonies of bees in 10-frame 2 story hives, and locations with buildings and stock range, deeded land in good sage range near Rincon, Riverside Co., Cal. T. O. ANDREWS.

WANTED.—To exchange a 200-egg Reliable incubator and brooder, been used very little, for choice comb or extracted honey.
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WANTED.—To buy, on short time, with good security, or to trade 160 acres of land, 16 miles north of Garden City, in Finny Co., Kan, for bees, with extracting combs. GEO. R. WILLIAMS, Ottawa, Ill.

WANTED.—To exchange a Newcomb No. 3 Fly Shuttle loom, in good order, complete, for windmill and tower, etc., or any good offer.
FRED WHITAKER New Smyrna, Fla.

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WANTED.—To sell apiarian outfit of 200 colonies Italians in Dovetailed hives, in best white clover part of Minnesota (also basswood and goldenrod); to a buyer of the lot, colonies at $4.00, and accessories at one-half list price; combs 20c a square foot.
X Y Z, GLEANINGS.

WANTED.—To exchange for a Barnes Saw, or any thing I can use in my apiary, a fly shuttle carpet-loom (Dean,s), good as new: cost $60.00 when new; will take $25 00 cash. My bees and supply business take all my time, so I can not weave carpets any more.
E. R. FOSMIRE, Cromwell, Iowa.

WANTED.—To sell best type-writer for bee-keepers; practical, handy, low-priced. For exchange, Mann green-bone mill, good as new, cost $16.00. Want 8-frame L. or Dovetailed hives or extracting supers for same; extracting-combs from healthy apiary; double shotgun, 16 gauge. HARRY LATHROP, Monroe, Wis.

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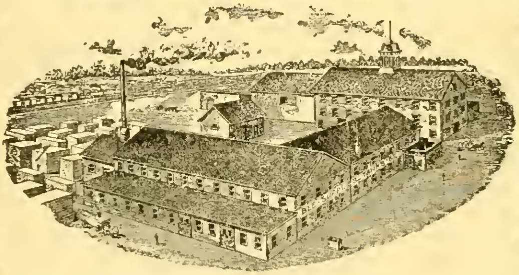

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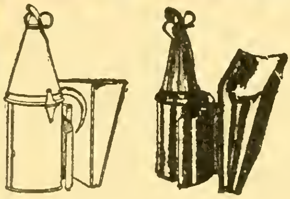

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Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, $1.50; 3½-inch, $1.10; 3-inch, $1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

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